

PIER PRESSURE:
THE EFFECTIVENESS OF THE EU'S SANCTIONS IN RESPONSE TO
THE RUSSO-UKRAINIAN WAR ON THE PORT OF ROTTERDAM

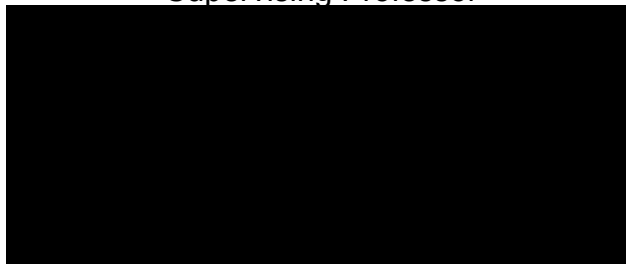
Aiden Joshua Forest Brasov

TC 660H
Plan II Honors Program
The University of Texas at Austin

May 2, 2023



Kishore Gawande, Ph.D.
McCombs School of Business
Supervising Professor



Assistant Dean Lorinc Redeai, Ph.D.
Lyndon B. Johnson School of Public Affairs
Second Reader

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ABSTRACT

Author: Aiden Brasov

Title: Pier Pressure: How The Russo-Ukrainian War Has Impacted Imports to the Port of Rotterdam

Supervising Professors: Kishore Gawande, Ph.D.; Lorinc Redei, Ph.D.

Following Russia's invasion of Ukraine on February 24th, 2022, the EU announced a series of sanctions targeting Russian individuals and industries to halt the progress of the Russian War Machine and ultimately end the conflict. As large trading partners with Russia, the inflow and outflow of goods through the Netherlands and its Port of Rotterdam were heavily impacted. This thesis analyzes the Netherlands' trade data to answer the following questions. With sanctions being the EU's primary diplomatic tool and the war still raging on, are these sanctions currently successful? With the importation of cobalt increasing immediately after the war's start, did this spike in imports lead to less effective sanctions? With much of this data released months after it is collected, how does the lack of timely, publicly available data influence sanction evaluation?

To do this, the first task is to explore different sanction evaluation methods and select the best to measure the EU's sanction efficacy. The second task is to address the rise in the importation of cobalt and how this might delay Europe's economic disentanglement from Russia. The third task is to discuss the current lack of available trade data in the EU and the benefits to future sanction evaluation by publicizing Bill of Ladings data.

ACKNOWLEDGEMENTS

I would first like to give thanks to my Thesis advisors, Dr. Gwande and Dr. Redei. Our conversations over the course of the year heavily impacted the direction of my thesis. Both were never my professors here at UT, but they had significantly impacted my educational experience on the 40 acres. Without your constant input and assistance, my work would hardly be as comprehensive, robust, or meaningful. I would also like to thank the Plan II Program for allowing me to attend the Greentech for Ports and Terminal Operators conference in Hamburg, Germany. Interactions with the brilliant men and women behind some of Europe's largest ports and port suppliers proved invaluable to my research and conclusion. I would like to thank my dear friend Daniel Li. Your continual encouragement pushed me to dive further into my research than I ever thought possible. Finally, I would like to thank my wonderful parents, Adiel and Laura Brasov, for investing in me and my education. This thesis is a fruit of your labor.

INTRODUCTION

The Port of Rotterdam is the lifeline of the European Union and connects the continent to the outside world. From 1962 until 2004, the port was the busiest in the world, and today, it is the largest port by annual tonnage outside of Asia. Through state-sponsored development and EU-tax breaks, Rotterdam has invested heavily in its port, railway, river, and road infrastructure to transport goods into the hinterland, and Rotterdam alone accounts for 12.25% of incoming goods to Europe.¹ Therefore, the vast majority of goods imported through this city are bound for other countries in the European Union.

Given its enormity, the Port generates significant economic and social value for the entire continent of Europe.² Its infrastructure, investment, and continuous innovation serve as a model for other ports around Europe and throughout the world. Its prominence also leads it to heavily interact with some of Europe's largest trading partners, making it a key touchpoint in the European Union's relationships with foreign countries. Consequentially, this also means that it plays a crucial role in the implementation of EU legislation.

There has been a plethora of EU initiatives that have directly affected the Port of Rotterdam. Some examples of these are found in aiding in the identification of criminal

¹Port of Rotterdam, ShipHub,
<https://www.portofrotterdam.com/en/up-to-date-information/arrival-and-departures>.

²Port of Rotterdam. "Port Vision: Rotterdam." Port Vision, Port of Rotterdam, June 2020,
<https://www.portofrotterdam.com/sites/default/files/2021-06/Annual-report-highlights-Port-of-Rotterdam-2020.pdf>.

networks in EU's ports and extending emissions trading to the ports themselves.^{3 4}

However, one of the most important initiatives placed on the Port in recent times has been the EU's sanctions packages on Russia in response to their aggression in Ukraine.

On February 24th, 2022, Russia invaded Ukraine through their shared border in the East and through the country of Belarus in the North.⁵ In response, the European Union, alongside many of its allies, issued sweeping sanctions on the importation of goods from Russia into the continent and the exportation of European goods into Russia. Through increasingly restrictive sanctions packages, Russian trade with the West declined. This meant that Russian trade with the Port of Rotterdam also decreased.

While trade generally trended downward between Russia and the Port, some goods experienced a significant uptick in their trade volume. This suggests that the EU's sanctions may have had a more nuanced impact. While scholars in the past have analyzed the current effectiveness of EU sanctions and the change in trade balances that were sparked by them—few, if any, have focused on the reason behind these spikes in trade and how they impact the overall success of the sanctions. My thesis will evaluate this issue.

Research Methodology

³ Europol. "Criminal Networks in EU Ports: Risks and Challenges for Law Enforcement." Europol, European Union Agency for Law Enforcement Cooperation, 5 Apr. 2023, <https://www.europol.europa.eu/publications-events/publications/criminal-networks-in-eu-ports-risks-and-challenges-for-law-enforcement>.

⁴ Ship & Bunker News Team. "Rotterdam Analyses EU-ETS Impact on Ports." Ship & Bunker, 25 Mar. 2022, <https://shipandbunker.com/news/world/307752-rotterdam-analyses-eu-ets-impact-on-ports>.

⁵ The Visual Journalism Team. "Ukraine in Maps: Tracking the War with Russia." BBC News, BBC, 9 Mar. 2023, <https://www.bbc.com/news/world-europe-60506682>.

In my thesis, I will provide background on the existing trading relationships between the Port of Rotterdam and Russia. Then, I will analyze the EU sanctions put into place in response to the Russo-Ukrainian war and the effects on different import categories, namely cobalt. Finally, I will evaluate the effectiveness of the sanctions in achieving their diplomatic goals and provide examples of how they could be improved in the future. Ultimately, I hope to address how the Russo-Ukrainian war has impacted imports to the Port of Rotterdam and how EU sanctions can become increasingly effective in the future.

Therefore, the primary research question that I will be addressing is, “in the context of trade between the Port of Rotterdam and Russia, were the EU’s sanctions successful?” These questions will provide a unique perspective on the effects of international diplomacy on inter-continental trade. It will also shed light on the impact of the EU policies on the global supply chain. To answer this rather lofty question, it can be further broken down into separate issues.

First, I will address the existing trade balance between the Netherlands and Russia before the start of the war. This will provide the necessary background context to then subsequently analyze the change in trade balances after February 24th, 2022. It will also highlight the diversity of goods transferred between these two nations, which will prove essential when analyzing the types of products that experienced an uptick in trade.

Second, I will evaluate the intentions behind the creation of EU sanctions. This will be done by identifying what makes sanctions successful, then exporting these

frameworks to the public press statements and legislation concerning the sanctions.

Through this process, we can better understand why sanctions were used in response to Russian aggression, the desired end goal for the EU, and the ramifications of using such intense blockages of trade.

Third, I will address the elephant in the room: the trade of certain goods increased in response to these sanctions. Using the importation of cobalt into the Netherlands from Russia to emphasize this point, I will analyze the timeframe that this occurred, the net effect on the Russian economy, and the reason behind the increase. In doing so, this analysis will serve as a representation of other types of goods that increased in trade volumes. It will also highlight how the fear of future sanctions drastically alters an enterprise's behavior.

Fourth, I will explain how the lack of publicly available shipping data makes determining the success of the EU's sanctions more difficult and can lead to future sanctions-driven trade spikes. I will argue that if the Port of Rotterdam were to post the Bill of Lading's data publicly, some of these increases in trade could have been averted much sooner, and, consequentially, the EU's sanctions could have been more successful.

In the end, the framework used to evaluate the current success of the EU's sanctions can also aid in future evaluations of sanctions packages. Furthermore, by exploring the nuances within the sanctions packages and how these influence corporate behavior, we can better understand how to create more robust sanctions moving forward. Through a better understanding of what makes sanctions successful and how

sanctions impact global trade, policymakers will be better equipped to navigate difficult geopolitical conflicts when they arise.

CHAPTER I: THE ROLE OF THE PORT OF ROTTERDAM

The Role of Reporters and Partners in Maritime Trade

In every trading relationship, there are two parties: the seller and the buyer. In international trade deals, it is the seller, more formally known as the *Reporter*, that takes primary responsibility for the trade. The *Reporter* is thus synonymous with the exporting country, while *Partner* is the importing country. The differences in valuation arise from the different methods that *Reporters* and *Partners* use to calculate the value of the goods.

Most *Reporters* report the price of goods on a Free on Board (FOB) basis.⁶ FOB implies that the seller covers the costs of transporting the goods to the shipyard and of the delivery and loading of goods onto a maritime vessel. However, FOB costs stop once the ship has set sail, and any shipping costs are not included in the total FOB calculation. Most exporters prefer to measure exports using FOB because it marginally reduces the seller's risk. The seller is only responsible for the costs up until the ship leaves the port and if the goods come damaged. However, after this point, it is the seller's responsibility to cover the remaining costs.⁷

In contrast, most *Partners*, including the Netherlands, calculate the price of goods on a Cost, Insurance, and Freight (CIF) basis. CIF is only used to calculate the

⁶ Mendoza, Ana. "Differences between Imports and Exports, Reporters and Partners." UN Statistics Wiki, United Nations, 12 May 2021, <https://unstats.un.org/wiki/display/comtrade/Differences+between+Imports+and+Exports%2C+Reporters+and+Partners#:~:text=Q%3A%20What%20are%20the%20differences,declared%20by%20the%20reporting%20country.>

⁷ Majaski, Christina. "Cost, Insurance, and Freight (CIF) Definition, Rules, and Example." Investopedia, Investopedia, 5 Apr. 2023, <https://www.investopedia.com/ask/answers/020215/what-difference-between-cif-and-fob.asp>.

value of goods that are transported on water, so therefore, it is the preferred method of importing ports. Using CIF, the *Partner* assumes responsibility for the goods once the boat leaves its origin. The buyer is responsible for all costs associated with importing and delivering the goods, including, but not limited to, providing insurance for the goods, paying shipping costs, paying customs fees, and ensuring that the goods are unloaded safely upon reaching their destination.⁸

While buyers use FOB and sellers use CIF for calculating the value of goods, this doesn't mean that the risk necessarily transfers once the ship leaves the origin port. Instead, risk and insurance are usually independently discussed between the two parties due to the many nuances associated. Each party then has the responsibility to report the insurance they pay as a part of the total costs of the goods.

On average, since the *Partner* covers most of the insurance—in addition to shipping fees and customs duties—they typically report a slightly higher price for the same goods. Hence importers, using a CIF basis, tend to value the total amount of goods entering the country higher than exporters who use FOB instead. This is key to remember when analyzing the trading relationship between the Dutch and the Russians since we will be using the Netherlands' figures.

Harmonized System Codes

In trading relationships, it is also imperative to identify what types of goods are being exchanged. Hence, the harmonized system codes (HS Codes) were introduced in

⁸Noah, David. "INCOTERMS Comparison: FOB vs. CIF-What's the Difference?" Shipping Solutions Export Document Software - Home Page, Shipping Solutions, 13 July 2022, <https://www.shippingsolutions.com/blog/fob-vs-cif>.

1988 to accomplish this task. The harmonized system is “an international nomenclature for the classification of products” developed by the World Customs Organization.⁹ Using six-digit codes, it is comprised of more than 5,000 unique commodity groups, and over 98% of the merchandise in international trade is classified using this system.¹⁰ Both the Netherlands and Russia report their trade in terms of HS codes, and the EU also lists its sanctions requirements using them.

To properly read HS codes, we begin with the first two digits, which define which of the 99 unique chapters the goods are a part of. For example, 09 = Coffee, Tea, Maté, and Spices. The following two numbers identify groupings in that chapter. For example, 09.02 = Tea, whether or not flavored. Finally, the final two numbers add even more specificity. For example, 09.02.10 = Green tea (not fermented).¹¹ Through the unique combination of six numbers, all goods traded between countries can be listed. This results in savings for private enterprises and gives local governments the ability to closely monitor what types of goods are entering.

History of Russia Exports and Netherland Imports

Armed with a background in maritime trading partners and harmonized system codes, we can begin to analyze the complex trading relationship between Russia and the Netherlands. Prior to the war, the Russian Federation was the 7th largest importer to the Netherlands—with many of the goods intended for the hinterland. It accounted for

⁹Mendoza, Ana. “Harmonized Commodity Description and Coding Systems (HS) .” UN Statistics Wiki, United Nations, 12 May 2021, <https://unstats.un.org/wiki/pages/viewpage.action?pageId=87426301>.

¹⁰Worlds Customs Organization. “What Is the Harmonized System (HS)?” World Customs Organization, <https://www.wcoomd.org/en/topics/nomenclature/overview/what-is-the-harmonized-system.aspx>.

¹¹Mendoza, Ana. “Harmonized Commodity Description and Coding Systems (HS) .” UN Statistics Wiki, United Nations, 12 May 2021, <https://unstats.un.org/wiki/pages/viewpage.action?pageId=87426301>.

\$17.5 Billion in total imports in 2021.¹² This is an equally impressive feat considering that the Netherlands is the 8th largest importer in the world. Furthermore, with over 70% of Dutch trade occurring through the Port of Rotterdam, slightly over \$12 Billion in goods inbound from Russia passed directly through this port.

Over the past 25 years leading up to the Russian invasion (1997-2021), imports to the Netherlands have varied drastically (*figure 1*). In the early 2000s, Russian imports hovered from \$1-\$2 billion before hitting an all-time high at just under \$6 Billion in 2012. In 2013, imports to the Netherlands nearly matched the previous year's record. However, this large exchange of goods between Russia and the Netherlands would soon come crashing down in response to a geopolitical (an effect which we are similarly analyzing).

On February 20th, 2014, Russia invaded the region of Crimea, Ukraine's southern peninsula that jets into the black sea. In response to this attack on a sovereign nation, the EU created its first three sanctions packages against the Russian Federation.¹³ Compared with the sanctions most recently imposed—these were relatively weak. They primarily targeted key Russian individuals and organizations involved with the attack and put a ban on trading arms, certain gas-related machinery, and some forms of investment. Russia responded by banning the import of Western foods.

Despite being more limited in nature, the EU sanctions clearly had a profound impact on trading relations. By 2015, imports from Russia were half of their previous

¹²Michigan State University. "Netherlands: Trade Statistics." Global Edge, Michigan State University International Business Center at Broad, 18 Feb. 2023, <https://globaledge.msu.edu/countries/netherlands/tradestats>.

¹³General Secretariat of the Council. "Timeline - EU Restrictive Measures against Russia over Ukraine." Consilium, European Council / Council of the European Union, 13 Apr. 2023, <https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-over-ukraine/sanctions-against-russia-explained/>.

high just two years before. Despite these sanctions never disappearing, the Dutch gradually increased their Russian imports to around \$4 Billion in the years leading up to the Russo-Ukrainian war (*Figure 1*).

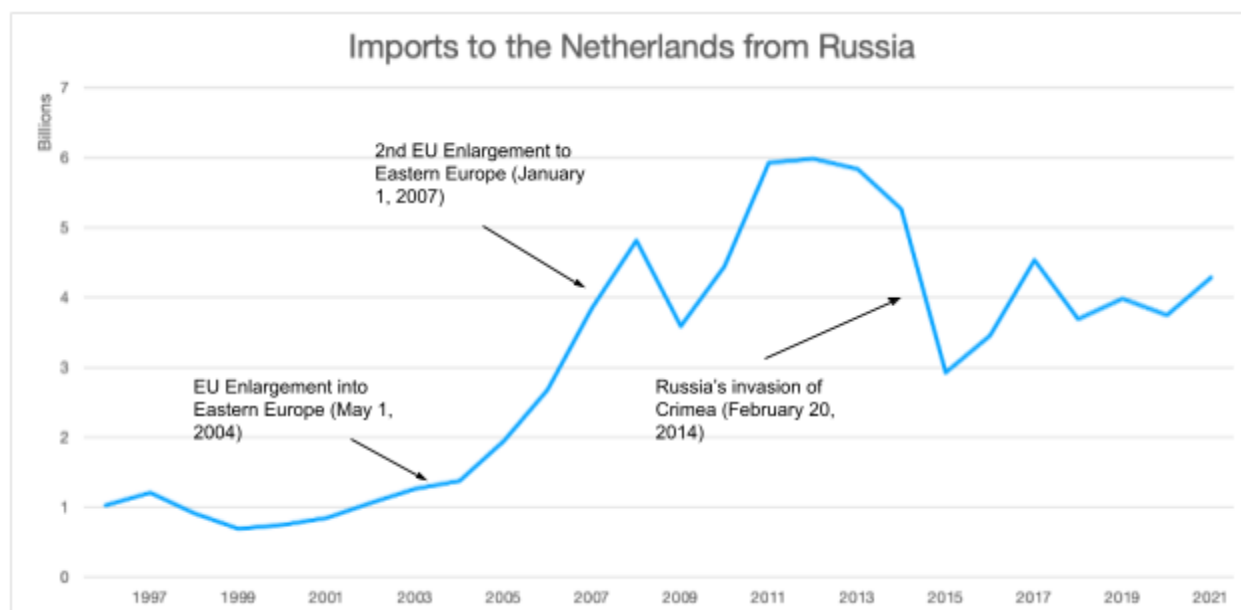


Figure 1
Source: UN ComTrade Database

Yet, history always finds a way to repeat itself. On February 24th, 2022, Russia invaded the Western regions of Ukraine. The EU once again responded by increasing their sanctions against Russia to become more sweeping in nature. However, these sanctions didn't arrive immediately, and there was a delay caused by the drafting, discussion, and enactment processes. In the meantime, the Dutch had their single greatest monthly import from Russia since 2014. In March of 2022, the Dutch imported

\$2.78 Billion worth of goods.¹⁴ A number that quickly fell to \$488 Million the following month, which represents the lowest monthly imports from Russia since 2014.

The relationship between record-breaking Dutch imports immediately followed by Russian aggression is uncanny. Although there is little evidence to suppose that these two situations are related, it is alarming how volatile Dutch imports are to the Russian markets. When Russia is healthy, the Netherlands imports record amounts of goods. When Russia is unhealthy, the Netherlands is significantly affected (due to EU sanctions), and it takes a long stretch of stability to bring these imports up to similar highs. Thus, we would expect to see trade significantly declining in the wake of Russia's recent invasion of Ukraine, and it to take years for trade volumes returns to normal.

¹⁴tradingeconomics.com. "Netherlands Imports from RussiaMarch 2023 Data - 2014-2022 Historical Data." Trading Economics, 2023, <https://tradingeconomics.com/netherlands/imports-from-russia#:~:text=Imports%20from%20Russia%20in%20Net%20herlands%20averaged%201304.07%20EUR%20Million%20from,for%20Netherlands%20Imports%20from%20Russia>

CHAPTER II: UNDERSTANDING SANCTIONS

At 5:00 AM on February 24th, Russia invaded Ukraine through the Eastern border the two countries share. One day later, on February 25th, the European Union launched its first sanctions package aimed at crippling the Russian war machine and the economic driving forces behind it. In this sanction package that went into effect on February 26th, the EU banned exports of dual-use goods and technologies, oil refining machinery, and aerospace equipment. Furthermore, key Russian officials and oligarchs tied to the invasion had their assets frozen, and their travel to the EU banned.¹⁵ In effect, these sanctions aimed to deter Russian aggression and make the war too costly for Russia to continue.

Sanctions are defined as “the withdrawal of customary trade and financial relations for foreign and security policy purposes.”¹⁶ The first recorded use of sanctions was in 432 BC when the Athenian empire cut off trade with Megara and effectively strangled their economy. In the early 20th century, the League of Nations applied sanctions on countries that they wanted to pressure to comply.¹⁷ Nowadays, sanctions are used by the EU and other countries to “coerce, deter, punish, or shame entities that endanger their interests or violate international norms of behavior.”¹⁸ Because of these

¹⁵ Staff at DETE. “EU Trade Sanctions in Response to Situation in Ukraine.” DETE, Department of Enterprise, Trade, and Employment, 27 Feb. 2023, <https://enterprise.gov.ie/en/publications/eu-trade-sanctions-in-response-to-situation-in-ukraine-.html#:~:text=These%20sanctions%20came%20into%20effect,destabilising%20the%20situation%20in%20Ukraine.>

¹⁶ Masters, Jonathan. “What Are Economic Sanctions?” Council on Foreign Relations, Council on Foreign Relations, 12 Aug. 2019, <https://www.cfr.org/backgrounder/what-are-economic-sanctions.>

¹⁷ Abughris, Noura. “A Brief History of Economic Sanctions.” Carter-Ruck, 1 Feb. 2023, [https://www.carter-ruck.com/insight/european-investment-law-and-arbitration-review-micula-v-romania-a-saga-of-lasting-significance/.](https://www.carter-ruck.com/insight/european-investment-law-and-arbitration-review-micula-v-romania-a-saga-of-lasting-significance/)

¹⁸ Masters, Jonathan. “What Are Economic Sanctions?” Council on Foreign Relations, Council on Foreign Relations, 12 Aug. 2019, <https://www.cfr.org/backgrounder/what-are-economic-sanctions.>

properties, policymakers view sanctions as a lower-cost, lower-risk course of action between war and diplomacy. A potential tool in their toolbelt that they can deploy when “national interest is less than vital or where military action is not feasible.”¹⁹ Due to Russia’s proximity and military history with Western Europe and many EU member states active in NATO, combined with its position as a nuclear state, made direct conflict seen by many as a non-option. Instead, sanctions were the go-to tool used by EU policymakers for the rationale outlined above.

Evaluating Sanctions by their Outcomes

With the introduction of harsh sanctions packages on Russia, many have questioned the effectiveness of these sanctions. At first glance, it would be easy to evaluate the success of sanctions by how much they influence the sanctioned country—ideally causing the affected country to alter its foreign or domestic policy. However, this stance is ineffective in assessing sanctions packages for a few reasons.

First, it is near-impossible to establish a causal relationship between the use of sanctions and the end of a conflict. Conflicts end due to many qualitative and quantitative variables, many of which can not be accurately measured, such as regime changes, shifts in public opinion, and poor military tactics, to name a few. While it is likely that sanctions could have played a significant role in deterring the continuation of the conflict, ultimately, their effects are “only correlations, not causal relationships.”²⁰

¹⁹ Masters, Jonathan. “What Are Economic Sanctions?” Council on Foreign Relations, Council on Foreign Relations, 12 Aug. 2019, <https://www.cfr.org/backgrounder/what-are-economic-sanctions>.

²⁰ Masters, Jonathan. “What Are Economic Sanctions?” Council on Foreign Relations, Council on Foreign Relations, 12 Aug. 2019, <https://www.cfr.org/backgrounder/what-are-economic-sanctions>.

Second, sanctions often evolve. The severity of sanctions will often increase or decrease throughout the war. In addition, the scope and logic behind the sanctions also shift. Due to the fluidity of sanctions, pinpointing specific sanctions that turn the tides of a conflict is a mere pseudoscience.

Third, what matters most is the “comparative utility of sanctions [...], not simply whether they have achieved their objective.”²¹ Oftentimes, introducing sanctions is the better option when compared with other courses of action, including inaction. Because of this property, some sanctions could express opprobrium—i.e., harsh criticism or censure—rather than intending to shape an outcome.

Fourth, by evaluating the effectiveness of sanctions using the outcome as a proxy, we limit ourselves to only considering resolved conflicts. The Russian-Ukrainian war is ongoing and is ramping up in scope daily. We may not know the outcome of this war for another decade, yet we still have the need to understand how successful the current EU sanctions are.

Clearly, evaluating the success of sanctions based on the outcome of the conflict is ineffective. It is, therefore, necessary to look for alternative methodologies that can better gauge the effectiveness of the EU Sanctions packages.

Evaluating Sanctions by their Reduction in Trade

One such methodology focuses on determining sanctions’ effectiveness by how well they are followed. While some scholars in sanctions-adjacent fields agree that this

²¹ Masters, Jonathan. “What Are Economic Sanctions?” Council on Foreign Relations, Council on Foreign Relations, 12 Aug. 2019, <https://www.cfr.org/backgrounder/what-are-economic-sanctions>.

framework is bunk, it is key to understand it for three reasons.²² First, it is the methodology oftentimes initially proposed by those unfamiliar with the field, and for this reason alone, it should be discussed to increase our collective understanding of sanctions. Secondly, mere adherence to sanctions doesn't mean that imports and exports of sanctioned goods aren't being bypassed through 3rd parties. Third, factoring in the newness of sanctions and the severity of repercussions associated with breaking the law, sanction rule-breaking either rarely happens or takes years to uncover the occurrence—both reasons which are problematic when evaluating their current success. I will begin by discussing the first reason.

Lee Jones and Clara Portela bring up this framework in their work titled 'Evaluating the success of international sanctions: a new research agenda.' In this article, the two authors argue that measuring the "success solely in terms of target's compliance with official, target-related goals" is oftentimes incomplete because it approaches sanctions from the standpoint that their influence is presented at face value. While sanctions oftentimes do seek to accomplish the goals that are publicly announced alongside them, this is not a comprehensive list. Sanctions represent a tool that goes much further beyond the vocabulary and verbiage of the rules listed on them. To denigrate them to this position is to believe that foreign policy is simple to understand and can only be stated in its written form. Clearly, very few scholars agree with this standpoint because it discounts the depth of foreign policy that sanctions desire to form but don't outright state so.

²²Haass, Richard N. "Economic Sanctions: Too Much of a Bad Thing." Brookings, Brookings, 28 July 2016, <https://www.brookings.edu/research/economic-sanctions-too-much-of-a-bad-thing/>.

Second, sanctions are quite easy to circumvent. Stemming from the rise of global trade, EU countries will still send goods with Russian export sanctions on them to other nations around the world. Cutting off exports to Russia doesn't inhibit their exports of the same good elsewhere. However, not all countries maintain the same international sanctions policies. Thus, these nations can still receive goods from the EU and then, if their legislation doesn't prohibit it, go on and sell these same products to Russia. Ordinarily, these 3rd party markets only exist to circumvent tax laws since it often creates market inefficiencies.

While it is sometimes hard to pinpoint their existence initially, it is strikingly obvious at other times. For example, the EU, the US, and many other Western nations have banded together and created a microchip export sanction ban on Russia. This initially hurt Russia's war efforts (for reasons that will be discussed in a later passage), yet much of this could be undone by Turkey's increasing exports of microchips. Over 2022, Turkey has ramped up its microchip exports to Russia, and it has been reported that \$777 million of these products were made by Western firms, many of which exist in countries with sanctions packages against Russia.²³ By combining this legal loophole and global trade, many corporations and individuals can disobey national trade policy entirely.

Third, evaluating sanctions by their adherence is too delayed. EU sanction laws are enforced by member states, not the European Commission.²⁴ Once the law appears

²³Spicer, Jonathan. "U.S. Warns Turkey on Exports Seen to Boost Russia's War Effort." Reuters, Thomson Reuters, 5 Feb. 2023, <https://www.reuters.com/world/us-warned-turkey-exports-seen-boost-russias-war-effort-official-says-2023-02-04/>.

²⁴Staff at the European Commission. "Restrictive Measures Explained." European Commission - European Commission, 26 Feb. 2022, https://ec.europa.eu/commission/presscorner/detail/en/qanda_22_1401/smo.

to be broken, an infringement procedure takes a minimum of 4 months of warnings and citations before it is taken to court. It should be noted that due to the complexity of sanction law and infringement, this legal procedure would likely take years, not months. Furthermore, most of these infringements are handled outside of court, usually over a period of months of negotiation.²⁵ To evaluate sanctions' success by how well they are followed is to lag a minimum of 4 months at any one point... and this is assuming that sanctions laws are even broken.

The EU is extremely strict about breaking sanction laws regarding Russia. Most member states view any organization or individual caught breaking these sanctions as a criminal offender. The EU is also on a path to getting stricter on the matter.

In November of 2022, EU countries “unanimously adopted a decision to add the violation [of circumventing sanctions...] to the list of EU crimes.”²⁶ This was created in response to the legal loophole noticed in Turkey and elsewhere. It thereby aims to fix this issue by ensuring that banned exports to Russia don't find another pathway there.

In addition, the European Commission recently proposed fining guilty companies 5% of their worldwide turnover. This same proposal also outlines that any guilty individuals would be subject to no less than five years of jail time.²⁷ While the European Parliament and all 27 member states would need to approve this proposal before it becomes law, its messaging is clear—any attempts to break sanctions against Russia

²⁵Staff at the European Commission. “Infringement Procedure.” European Commission, 19 Dec. 2022, https://commission.europa.eu/law/law-making-process/applying-eu-law/infringement-procedure_en#:~:text=According%20to%20the%20EU%20treaties,which%20can%20impose%20financial%20sanctions.

²⁶Euronews. “Circumventing Sanctions to Become an 'EU Crime'.” Euronews, 28 Nov. 2022, [https://www.euronews.com/my-europe/2022/11/28/circumventing-sanctions-to-become-an-eu-crime.](https://www.euronews.com/my-europe/2022/11/28/circumventing-sanctions-to-become-an-eu-crime)

²⁷Strauss, Marine, and David Goodman. “EU Plans to Fine Companies for Breaking Sanctions against Russia.” Reuters, Thomson Reuters, 2 Dec. 2022, [https://www.reuters.com/world/europe/eu-plans-fine-companies-breaking-sanctions-against-russia-2022-12-02/.](https://www.reuters.com/world/europe/eu-plans-fine-companies-breaking-sanctions-against-russia-2022-12-02/)

will be met with severe punishment. As a result, there have been no major reported sanction breaks within the EU at the time of this writing. Therefore, not only is measuring the success of sanctions based on how well they are followed unhelpful, but it would also lead to a premature conclusion that the EU's sanctions have been overly successful.

Evaluating Sanctions by their Influence on Domestic Policy

After addressing the shortcomings of assessing sanctions by their mere adherence, Jones and Portela argue that we should instead observe their effects on the “domestic order in target and sender states and global order more broadly.”²⁸ In other words, one measurement we can use is measuring domestic policy changes in the sanctioned country. Simultaneously, this emphasizes the more substantive effect that sanctions can have on reshaping and realigning the global order. Jones and Portela forego providing exact metrics that can be used to determine success and conclude—like all other good researchers do—that there still is more research needed to “develop a better understanding of the multiplicity of motives behind sanctions, and on how to measure success for each goal.”²⁹ Beyond the lack of a framework from which to measure domestic shifts, this evaluation can also be uncomprehensive.

A primary issue with this approach is that domestic order realignment is a non-quantitative factor that appears to occur instantaneously to the outside observer yet

²⁸Jones, Lee and Portela, Clara. “Evaluating the success of international sanctions: a new research agenda”. *Revista CIDOB d’Afers Internacionals*, issue 125 (September 2020), pp. 39-60. DOI: doi.org/10.24241/rcai.2020.125.2.39/en

²⁹Jones, Lee and Portela, Clara. “Evaluating the success of international sanctions: a new research agenda”. *Revista CIDOB d’Afers Internacionals*, issue 125 (September 2020), pp. 39-60. DOI: doi.org/10.24241/rcai.2020.125.2.39/en

has been brewing beneath the surface for quite some time. An example of this can be found in studying autocratic regimes as they transition to democracy. In Barbara Geddes, Joseph Wright, and Erica Frantz's paper 'Autocratic Breakdown and Regime Transitions,' the authors make a point that measuring the transition between different forms of government is extremely variable on the data that is used. They state that "better data [is needed to...] more carefully measure autocratic regime and transition characteristics."³⁰ However, this data is often not quantitatively found due to the amount of public opinion change that goes unnoticed in the beginning. Similarly, evaluating the effects on the sanctioned countries by changes in domestic order is susceptible to this same lack of data. It can also lead to a form of hindsight bias, wherein we are more susceptible to believing that the change was easily predictable when, in reality, it was not believed to be occurring at that point in time.³¹ While understanding current domestic changes would offer international policymakers the golden goose when it comes to sanctions, this goal is seemingly unattainable and, therefore, is outside the scope of this paper.

Evaluating Sanctions by their Intent

While the goal of developing a quantitative framework from which to evaluate the EU's sanctions success is necessary, there are currently no such frameworks offered. However, this is not a cause to lose hope. By drawing on the insights gathered from Lee

³⁰Geddes, Barbara, et al. "Autocratic Breakdown and Regime Transitions: A New Data Set: Perspectives on Politics." Cambridge Core, Cambridge University Press, 14 July 2014, <https://www.cambridge.org/core/journals/perspectives-on-politics/article/autocratic-breakdown-and-regime-transitions-a-new-data-set/EBDB9E5E64CF899AD50B9ACC630B593F>.

³¹Staff at the Decision Lab. "Hindsight Bias." The Decision Lab, <https://thedecisionlab.com/biases/hindsight-bias>.

Jones and Clara Portela's 'Evaluating the success of international sanctions: a new research agenda' and the previous sections outlining why they don't work from a perspective of outcomes, trade reduction, and domestic policy shifts, we are still able to come up with criteria from which to evaluate the success of sanctions. In particular, we can determine whether the original intent behind the sanctions is being followed. Let's begin by determining that intent.

While the intent behind the EU's sanctions on Russia has been alluded to previously, by analyzing EU documents and talking points from key EU leaders, we are better able to establish the reason behind their existence. The EU's official standpoint on these sanctions is that they are intended to weaken "Russia's economic base, depriving it of critical technologies and markets, and significantly curtailing its ability to wage war."³² Thus, it appears that there are three separate intentions with these sanctions: to weaken Russia's economy, to ban the export of military goods and services, and to limit its ability to continue the war against Ukraine. While the first two intentions are more straightforward in how they can be carried out, the third involves more nuance.

From the onset, the EU has worked hard and fast to weaken the Russian economy. In response to Russia invading the Donetsk and Luhansk 'oblasts' of Ukraine on February 24, 2022, the first package of sanctions included freezing Russian financial institutions from using the SWIFT banking platform. In an overview of this first package, the EU stated that this freeze "will cut Russia's access to the most important capital

³²Staff at European Commission. "Sanctions Adopted Following Russia's Military Aggression against Ukraine." Finance Europa, European Commission, 31 Mar. 2023, https://finance.ec.europa.eu/eu-and-world/sanctions-restrictive-measures/sanctions-adopted-following-rusias-military-aggression-against-ukraine_en.

markets, [effectively] targeting 70% of the Russian banking market.”³³ In effect, EU member states sought to attack the Russian banking market directly as a direct method of weakening the Russian economy rather than passively allowing the Russian economy to be crippled by trade alone.

We can observe this same narrative in follow-up sanction packages as well. In the third package, the EU sought to “prohibit the provision of euro-denominated banknotes to Russia” which would decrease Russia’s ability to regulate the value of its own currency henceforth and protect against inflation by holding foreign capital in reserve.³⁴ In the fourth package, EU companies were prohibited from “from providing financial rating services to Russian companies” which furthermore increased the disconnection of the Russian financial institutions from the world economy.³⁵

While we could continue to detail the targeted attacks on the Russian financial sector throughout the next six sanctions packages, the point is made clear: the EU aims to weaken the Russian economy through a variety of methods, but primarily by targeting Russian banks and reducing the number of levers that the state government can pull to decrease inflation. Due to these sanctions, according to Ursula von der Leyen, “Russia's financial sector is on "life support," while its industries and military are being crippled by

³³ Staff at European Commission. “Sanctions Adopted Following Russia's Military Aggression against Ukraine.” Finance Europa, European Commission, 31 Mar. 2023, https://finance.ec.europa.eu/eu-and-world/sanctions-restrictive-measures/sanctions-adopted-following-russia-military-aggression-against-ukraine_en.

³⁴ Staff at European Commission. “Sanctions Adopted Following Russia's Military Aggression against Ukraine.” Finance Europa, European Commission, 31 Mar. 2023, https://finance.ec.europa.eu/eu-and-world/sanctions-restrictive-measures/sanctions-adopted-following-russia-military-aggression-against-ukraine_en.

³⁵ Staff at European Commission. “Sanctions Adopted Following Russia's Military Aggression against Ukraine.” Finance Europa, European Commission, 31 Mar. 2023, https://finance.ec.europa.eu/eu-and-world/sanctions-restrictive-measures/sanctions-adopted-following-russia-military-aggression-against-ukraine_en.

an exodus of international companies in response to the war.”³⁶ What made these economic sanctions all the more effective is that in addition to crippling Russian banks, they also forced private enterprises to withdraw their investment in Russia. No longer could private companies stand idly by while the economic war was waged between the EU and Russia.

The economic impact of these sanctions has been a priority for the EU from the very start. The rhetoric behind reducing Russia’s economy into a shell of its former self has been consistent from the first package all the way until the one-year anniversary when Ursula von der Leyen announced that “it is the Kremlin that has put Russia’s economy on the path of oblivion.”³⁷ While the EU sanctions have crippled the Russian economy over the past year, we can expect that this will continue to be a goal of the EU and its sanctions well into the future.

The EU has also taken strides to limit Russia’s attacking capabilities by banning goods with a military purpose. Revisiting the first sanctions, in addition to limiting financial transactions, the EU also prohibited the export of dual-use goods and technologies, oil refining machinery, and aerospace equipment. In effect, the EU seeks to pause the exports of any equipment or technology that could aid Russia in its wartime conquest. Furthermore, the sixth EU sanctions package specifically prohibits “vessels registered under the flag of Russia from accessing EU ports” and thereby importing Russian goods into Europe.³⁸ This applies to all Russian products barring specific

³⁶Rfe/rl. “Von Der Leyen Says EU Cannot Appease Russia Over Ukraine, Putin Will 'Fail'.” RadioFreeEurope/RadioLiberty, Radio Free Europe / Radio Liberty, 14 Sept. 2022, <https://www.rferl.org/a/eu-leyen-cannot-appease-russia/32033030.html>.

³⁷France 14 English. “EU chief Ursula von der Leyen says sanctions on Russia to stay • FRANCE 24 English.” France 24 English, Youtube.com, 14 Sept. 2022, https://www.youtube.com/watch?v=45pyWNI3D3E&ab_channel=FRANCE24English

³⁸ Staff at DETE. “EU Trade Sanctions in Response to Situation in Ukraine.” DETE, Department of Enterprise, Trade, and Employment, 27 Feb. 2023,

exceptions for the importation of raw materials and metals, nuclear fuels, pharmaceutical products, and any items deemed necessary for humanitarian purposes.

These two sanction packages, and the other eight not already mentioned, desire to deprive Russia of its key trading partner in the EU. As a result, the hope is that this will make its military endeavors increasingly difficult. By many accounts, these efforts are working. By sanctioning dual-use goods, defined as “items that can be used both for civilian and military applications,” the EU and its partners have created a microchip shortage in Russia.³⁹ This has forced Russia to harvest much-needed microchips from household appliances, such as washing machines and dishwashers, to help power their tanks and military equipment.⁴⁰ Thus, the specific sanctions targeting the acquisition of microchips have been successful.

This effectiveness has also been followed up by continual bans on other goods that could serve a military purpose. Earlier this year, von der Leyen spoke on the goal of the 10th package of sanctions and their focus on “new trade bans and technology export controls to Russia.”⁴¹ This recent package included bans on certain rare-earth compounds, integrated circuits, and cameras. It also increased scrutiny on monitoring the flow of goods to prevent the circumvention of banned goods into Russia (such as the case of microchips through Turkey).

<https://enterprise.gov.ie/en/publications/eu-trade-sanctions-in-response-to-situation-in-ukraine-.html#:~:text=These%20sanctions%20came%20into%20effect,destabilising%20the%20situation%20in%20Ukraine.>

³⁹Staff at Dow Jones. “What Are Dual-Use Goods?” Dow Jones Professional, 29 Mar. 2023, <https://www.dowjones.com/professional/risk/glossary/dual-use-goods-definition/>.

⁴⁰Whalen, Jeanne. “Sanctions Forcing Russia to Use Appliance Parts in Military Gear, U.S. Says.” The Washington Post, WP Company, 12 May 2022, <https://www.washingtonpost.com/technology/2022/05/11/russia-sanctions-effect-military/>.

⁴¹Fleming, Sam. “EU to Hit Russia with Trade Bans and Tech Export Controls Worth €11bn.” Subscribe to Read | Financial Times, Financial Times, 15 Feb. 2023, <https://www.ft.com/content/0d3babcf-e047-4b5f-bb0f-1c3011bb96e0>.

While the increasing list of banned goods lives up to the stated intent of limiting the Kremlin's ability to supply its military, perhaps the most showing piece of evidence rests in the EU's approach to these bans. In the same interview, von der Leyen later said that "the council wants the commission to follow [the effectiveness of these sanctions...] very closely and to see what kinds of sanctions [are] most effective." Adding that "it is very difficult to measure."⁴² The European Council's approach to these sanctions stems from a desire to see them succeed in actively limiting the transport of goods from the EU into Russia. They are actively working to increase the sanction's effectiveness in achieving the desired result—ending the war in Ukraine and building back up the country.

Based on the available documents, the EU has stated that these attacks on the Russian financial sector and war machine are to curtail the country's ability to make war with Ukraine. This seems like the exact outcome the EU seeks to reach. Recently, the European Council President, Charles Michel, has called European countries to "confiscate sanctioned assets to make Russia pay for its wartime damage to Ukraine."⁴³ Seized Russian assets in the EU account for tens of billions of dollars in capital. Yet there has been no legal follow-up on this request, and the implementation of it would be exceedingly difficult across all 27 member countries. The intention of such a move, according to Michel, would be "to make this money available ... especially for the

⁴²Fleming, Sam. "EU to Hit Russia with Trade Bans and Tech Export Controls Worth €11bn." *Subscribe to Read | Financial Times*, Financial Times, 15 Feb. 2023, <https://www.ft.com/content/0d3babcf-e047-4b5f-bb0f-1c3011bb96e0>.

⁴³Herszenhorn, David M. "Charles Michel Calls for Confiscation of Sanctioned Russian Assets." *POLITICO*, POLITICO, 5 May 2022, <https://www.politico.eu/article/michel-confiscate-sanctioned-assets-russia-oligarchs/>.

rebuilding of the country.”⁴⁴ Thus, it moved past just ending the war but instead, “it’s a question of fairness, a question of justice.”⁴⁵ While there has been little legal headwind on this issue since the statement was released, we can assume that this implies that the EU is not just focused on Russia halting its attack but also paying reparations for its actions. In effect, it seeks to remediate the situation by rebuilding Ukraine in the end. From this viewpoint, the EU has a particular long-term view on the effectiveness of its sanctions. Due to this nature, it would be rather shocking if the sanctions would disappear anytime soon without Russia changing course. The sanctions are here to stay and represent more than international disdain toward Russia.

The sentiment of sanctions staying in place is also echoed by von der Leyen. As the EU and other G7 countries were debating on imposing a new price cap on the maritime trade of petroleum products out of Russia, she argued that “we are making Putin pay for his atrocious war.”⁴⁶ This is further strengthened by the EU Commission releasing \$1 billion in funds to help Ukraine cover its most urgent needs.⁴⁷ Unsurprisingly, the EU sees a future for Ukraine with no war and the possibility of the nation even joining the Union. This future has first to overcome the major hurdle of the war, but it still won’t be realized for years after the conflict has ended. As a result, it

⁴⁴Herszenhorn, David M. “Charles Michel Calls for Confiscation of Sanctioned Russian Assets.” POLITICO, POLITICO, 5 May 2022, <https://www.politico.eu/article/michel-confiscate-sanctioned-assets-russia-oligarchs/>.

⁴⁵Herszenhorn, David M. “Charles Michel Calls for Confiscation of Sanctioned Russian Assets.” POLITICO, POLITICO, 5 May 2022, <https://www.politico.eu/article/michel-confiscate-sanctioned-assets-russia-oligarchs/>.

⁴⁶Tidey, Alice. “Von Der Leyen Promises 10th Package of Russian Sanctions in Kyiv.” Euronews, 2 Feb. 2023, <https://www.euronews.com/my-europe/2023/02/02/eu-heads-to-ukraine-for-summit-to-boost-integration-a-s-anniversary-of-invasion-nears>.

⁴⁷Tidey, Alice. “Von Der Leyen Promises 10th Package of Russian Sanctions in Kyiv.” Euronews, 2 Feb. 2023, <https://www.euronews.com/my-europe/2023/02/02/eu-heads-to-ukraine-for-summit-to-boost-integration-a-s-anniversary-of-invasion-nears>.

seems like the EU is as focused on Ukraine's future success as it is on its current conflicts, implying, once again, that the sanctions are a tool being used to achieve this feat.

While these sanctions maintain a long-term focus—observed both within the legal documents and through the EU's actions—it is necessary to caveat this with the fact that their true intentions may still be hidden. One of the sanction's largest geo-political weapons is the uncertainty involved. The uncertainty of additional goods and services that could be banned. The uncertainty of additional steps that Western governments will take to target the Kremlin. Ultimately, this uncertainty represents the additional poker chips that the EU has in reserve and is waiting to pull out should the conflict escalate. If Putin knew the exact type of future sanctions and actions that could be imposed, he would be able to compare this cost to the cost of increasing the ferocity of the war. It is for this exact reason that sanctions, their intentions, and their extent remain uncertain to both Putin and the general public.

Thus, given the information that is currently available, we can assume that sanctions do indeed maintain their stated intentions of crippling the Russian economy and reducing the inflow of military goods to end the Russo-Ukrainian war and rebuild Ukraine in the future.

Economic Impact of EU Sanctions Through Trade

The mere act of banning imports and exports of goods from Russia impacts their economy. By prohibiting trade, the EU is able to inflict economic damage. In 2021,

Russia experienced a trade surplus and exported \$189.83 billion more value worth of goods than it imported.⁴⁸ Globally, Russia is the 20th largest exporter in the world.⁴⁹ Having a trade surplus can be both good and bad. On the one hand, it could be a sign of high levels of industrial output and low unemployment, thus signaling a stronger national economy. On the other hand, it could be a sign of higher prices and interest rates in the country, signaling a slowing economy.⁵⁰ However, using Figure N below, we can observe that GDP growth has hovered at just above 1% for the past decade, with it even slipping into negative growth in 2015, 2016, and 2020.

While the country did experience a spike in growth coming out of the COVID pandemic in 2021, this is definitely the exception rather than the rule. In 2022, by imposing an import ban, Western nations effectively reversed many of these gains made in 2021 by shrinking the economy by 2.2%.⁵¹ Overall, the country's GDP is rather stagnant when compared with the world average, and the influence of trade sanctions has forced it to turn negative.

⁴⁸O'Neill, Aaron. "Russia - Trade Balance of Goods 2011-2021." Statista, 14 Oct. 2022, <https://www.statista.com/statistics/263634/trade-balance-of-goods-in-russia/#:~:text=In%202021%2C%20the%20trade%20surplus,about%20189.83%20billion%20U.S.%20dollars.&text=Russia%20has%20maintained%20a%20positive,du%20to%20the%20economic%20crisis>.

⁴⁹Staff at World Population Review. "Exports by Country 2023." Exports by Country 2023, 2023, <https://worldpopulationreview.com/country-rankings/exports-by-country>.

⁵⁰Kenton, Will. "What Is Trade Surplus? How to Calculate and Countries with It." Investopedia, Investopedia, 30 Oct. 2022, <https://www.investopedia.com/terms/t/trade-surplus.asp#:~:text=Understanding%20Trade%20Surplus-,A%20trade%20surplus%20can%20create%20employment%20and%20economic%20growth%2C%20but,o%20f%20its%20currency%20through%20trade>.

⁵¹Staff at Al Jazeera. "Russian Economy Shrank 2.1% in 2022, Much Less than Expected." Russia-Ukraine War News | Al Jazeera, Al Jazeera, 21 Feb. 2023.

Russian GDP Growth from 2013 to 2023

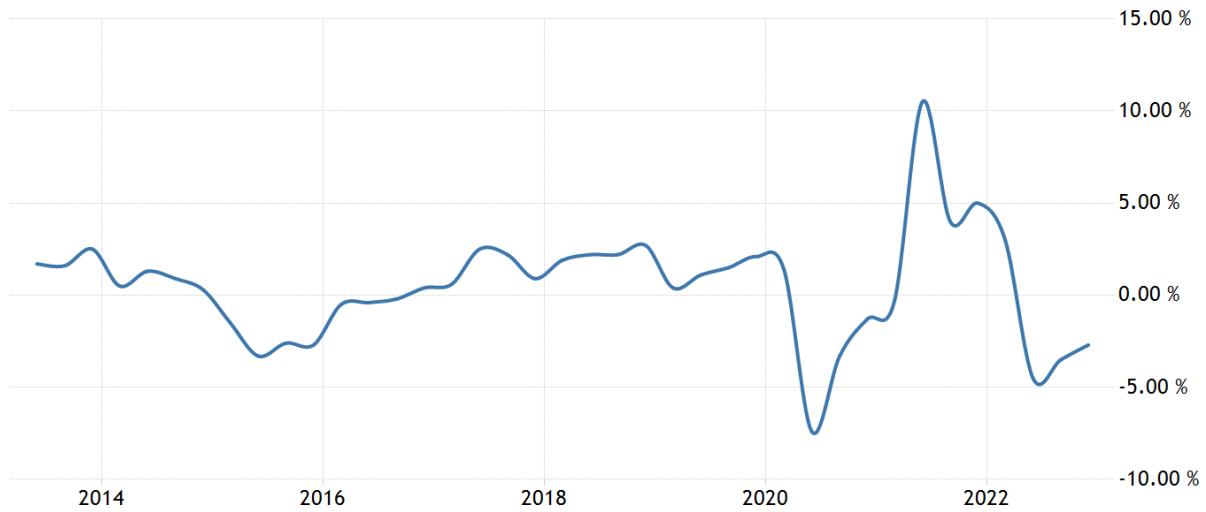


Figure 2
Source: tradingeconomics.com

Imports and exports also have an impact on Russian inflation rates. Sanctions banning the export of goods to Russia have forced the country to buy more of its domestic product. This increase in national spending forces more Russian Rubles to be poured into the national economy than would be otherwise. As investments in the local currency increase, so too does the national inflation rate, which leads to outlasting negative effects.⁵² In the five years leading up to the war, the Russian inflation rate hovered around 3%, with a small spike in 2021 of 6%. Yet, this small spike is incomparable to the 14% inflation rate that the country experienced in 2022 and the 10% inflation rate at the time of this writing.⁵³ Having such a high inflation rate leads to

⁵²Gylfason, Thorvaldur. "Exports, Inflation, and Growth." *Imf.com*, International Monetary Fund, Sept. 1997, <https://www.imf.org/external/pubs/ft/wp/wp97119.pdf>.

⁵³Statista Research Department. "Russia Inflation Monthly 2023." *Statista*, 18 Apr. 2023, <https://www.statista.com/statistics/276323/monthly-inflation-rate-in-russia/>.

low purchasing power, higher interest rates, and slower economic growth—all of which are detrimental to the long-term health of the Russian economy.⁵⁴ Overall, these economic sanctions led the Russian economy to shrink by an estimated 4.5% in 2022.⁵⁵

The EU and its partners have effectively halted Russia's economic growth by imposing widespread sanctions. This, in turn, has also decreased Russia's potential military investment. From this viewpoint, the sanctions can also be viewed as a success in the short term. They accomplished what they intended to do. However, when we zoom in on the exact trade relations, we can see that they are not as successful as we might have initially believed.

What Would Counteract the Sanction's Intent?

By limiting exports and imports, the EU sought to impact the Russian economy. This would then lead to a decrease in the number of goods and financing that Russia can provide its military. While trade volumes between Russia and the EU decreased due to sanction rules being followed, what about non-sanctioned goods?

To reinforce the strategy of trade reduction, all non-sanctioned items, such as nuclear fuel and raw materials, would ideally continue at their same pre-war rates of trade in order to reduce the amount of outside capital entering and leaving Russia. Any increase in the trade volume of non-sanctioned goods would effectively undo some of the economic effects that sanctions are causing. One way to think of this is that if the

⁵⁴Sharkey, Sarah. "5 Effects Of Inflation On The Economy." Quicken Loans, Quicken Loans, 22 Sept. 2022, <https://www.quickenloans.com/learn/effects-of-inflation#:~:text=Is%20Inflation%20Good%20Or%20Bad,and%20other%20negative%20economic%20effects.>

⁵⁵Statista Research Department. "Russia Inflation Monthly 2023." Statista, 18 Apr. 2023, <https://www.statista.com/statistics/276323/monthly-inflation-rate-in-russia/>.

Russian trade of one product was banned, but the trade of another product was increased, the net amount of foreign currency entering and leaving the country would remain largely unchanged. While there would still be harmful spillovers to the affected Russian industries that were no longer allowed to export, the country would be in a better position than if there was less foreign currency being exchanged. While the types of goods traded may be more impactful to stopping the war machine, introducing a substitution effect in the types of goods traded would allow the country to operate on less of a trade deficit than otherwise, thereby decreasing its inflation rate. Thus, non-sanctioned trade increases would reduce the overall effectiveness of the EU sanctions packages. Ultimately, this could dampen the blow of the sanctions and their influence to reverse the course of the war.

CHAPTER III: THE EFFECTIVENESS OF SANCTIONS ON THE IMPORTATION OF

COBALT

Russia is known for the vast number of raw materials that it exports beyond its borders. While oil and natural gas are two products that immediately come to mind, especially in this current climate, we would be remiss if there were the only materials we focused on. Russia is the second largest exporter of Cobalt, a key element needed to make rechargeable batteries.⁵⁶ It is also the second-largest exporter of Vanadium, an element used in different steel alloys for products where high strength is required, such as nuclear reactors and the aerospace industry.^{57 58} In fact, Russia sits on top of the second-largest Vanadium reserve in the world, which is rumored to be around 5 million metric tons! In 2017, Russia's minister of industry and trade, Denis Manturov, said that the country is "planning to significantly increase the nation's vanadium production [...] by paying subsidies to the country's largest vanadium producers and providing tax breaks."⁵⁹

Prior to the war, China was the leading importer of these raw materials, including cobalt and vanadium, followed closely by the Netherlands, which accounted for 7.7% of

⁵⁶ NS Energy Staff Writer. "Profiling the World's Largest Cobalt-Producing Countries." NS Energy, 22 Feb. 2021, <https://www.nsenerybusiness.com/features/top-cobalt-producing-countries/>.

⁵⁷ Pistilli, Melissa. "Top 4 Vanadium-Producing Countries (Updated 2023)." INN, INN, 23 Mar. 2023, <https://investingnews.com/daily/resource-investing/battery-metals-investing/vanadium-investing/vanadium-producing-countries/>.

⁵⁸ Staff at Australian Vanadium Limited. "What Is Vanadium?" Australian Vanadium Limited, 15 Nov. 2022, <https://www.australianvanadium.com.au/what-is-vanadium/#:~:text=Vanadium%20can%20be%20used%20to,and%20as%20girders%20in%20construction.&text=Vanadium%20can%20be%20utilised%20in%20ceramics%20as%20a%20pigment>.

⁵⁹ Shaw, Melissa. "Vanadium Reserves by Country." INN, INN, 11 May 2017, <https://investingnews.com/daily/resource-investing/battery-metals-investing/vanadium-investing/vanadium-reserves/>.

the total value.⁶⁰ While a large portion of this figure is due to oil and gas, other Russian raw material imports must not be understated. One of the most interesting aspects of these imports is that some raw materials significantly increased in their trade volume in 2022, after the start of the war, compared with previous years. The raw materials whose imports increased during 2022 are Copper, followed by Metals and Ceramets. We will first focus on Metals and Ceramets.

Metals, Cermets, and Articles Thereof

Metals and cermets are classified together under HS Code number 81. Metals are relatively easy to understand. A metal is defined as any substance characterized by “high electrical and thermal conductivity as well as by malleability, ductility, and high reflectivity of light.”⁶¹ Over three-quarters of all known chemical elements are classified as metals, and they are abundant, in different quantities, throughout the globe. In order for a metal to be classified within HS Code number 81, the metal must not be classified elsewhere. A good example of this is the element copper. Due to copper’s abundance in Earth’s crust and its usefulness in a variety of applications, over 25.3 million metric tons of the material are used annually.⁶² Due to these factors, it has received its own HS Code number of 74. Other commonly used metals such as Iron, Nickel, Aluminium,

⁶⁰Broom, Douglas. “What Else Does Russia Export, beyond Oil and Gas?” World Economic Forum, 18 Mar. 2022, <https://www.weforum.org/agenda/2022/03/russia-gas-oil-exports-sanctions/>.

⁶¹The Editors of Encyclopædia Britannica. “Metal.” Encyclopædia Britannica, Encyclopædia Britannica, Inc., <https://www.britannica.com/science/metal-chemistry>.

⁶²Garside, M. “Global Copper Usage 2021.” Statista, 9 Nov. 2022, <https://www.statista.com/statistics/267849/global-copper-consumption/#:~:text=In%202021%2C%20global%20refined%20copper,by%206.1%20million%20metric%20tons>.

Lead, Zinc, and Tin have also received their own HS Codes as well.⁶³ Therefore, the metals contained within HS Code 81 are referred to as “other base metals” and include many of the metals that don’t already have their own HS Code chapter.

In comparison to metals, cermets are slightly more challenging to understand. Cermets are defined as composites “in which ceramic materials and metals join together typically to give something with the high-temperature performance or wear resistance of a ceramic and the toughness, flexibility, or electrical conductivity of a metal.”⁶⁴ Most of the new, exciting materials developed over the past decade are cermets since they often combine the best properties of both metals and ceramics. Some applications of cermets are in electronics, as resistors and vacuum tubes, and in machine tools, where they provide higher cutting speeds, better surface finish, and last longer than traditional metal alloys.

From January 2018 until January 2022, the average annual import volume of metals and cermets into the Netherlands was \$20,257,560—a rather inconsequential number considering that the Netherlands imported \$18.3 billion worth of goods from Russia in 2021. However, right after the start of the war, the imports of these materials spiked by over 500%, with the Netherlands importing \$123,231,638 in 2022 (see *Figure 3*).⁶⁵

⁶³Staff at Cybex. “HS Code List: Harmonized System Code of Section 15 : (Chapter 72 -83) - Section XV-Base Metals and Articles of Base Metal.” HS Code List | Harmonized System Code Of Section 15 : (Chapter 72 -83) - Section XV-Base Metals And Articles Of Base Metal, <https://www.cybex.in/hs-codes/base-metals-articles-section-15.aspx>.

⁶⁴Woodford, Chris. “Cermets - an Introduction.” Explain That Stuff, 11 July 2022, <https://www.explainthatstuff.com/cermets.html>.

⁶⁵UN ComTrade. “UN COMTRADE: International Trade Statistics.” United Nations, United Nations, <https://comtrade.un.org/Data/Auth/LogIn>.

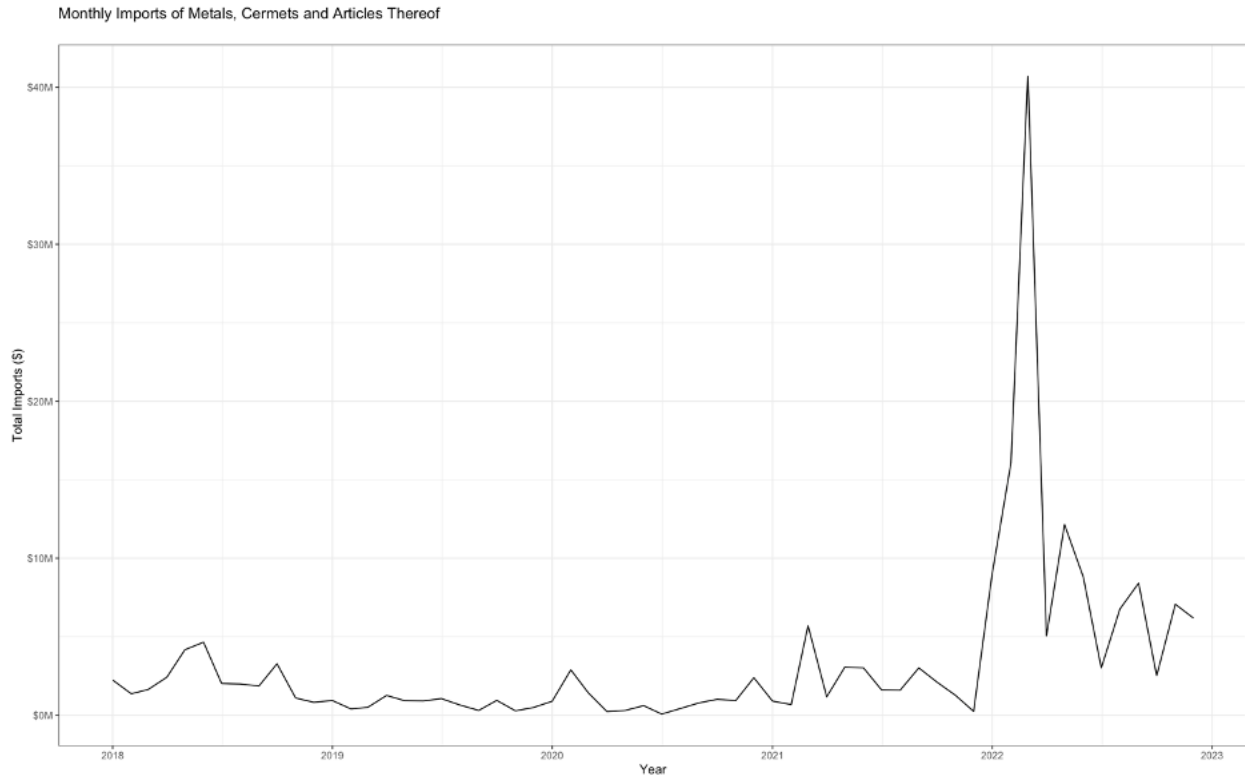


Figure 3
Source: UN Comtrade Database

The peak of these imports was in March 2022, when the Netherlands imported \$40,689,832 of HS Code number 81 in a single month. For reference, this is over double the annual imports of the prior four years. Furthermore, after this spike, the import of metals and cermets remains higher than it ever was in the past, with an average of \$10,609,117 in trade volume per month since February 2022. While this spike is exaggerated by the high price of cobalt during March, it still represents a large amount of HS Code 81 entering the country. By viewing the amount of these imports in the aggregate, however, we can merely guess about the reasons for this spike and if they showcase a chink in the EU's sanctions. In order to better understand why this spike may be happening, we must dive into both the individual products categorized

under HS Code number 81 and the EU legislation regarding this product category. Only then can we begin to hypothesize the reason behind this spike in trade and understand the effectiveness of these sanctions. I will first begin by breaking apart HS Code number 81 into its individual product categories.

HS Code number 81 has 13 unique categories within it.⁶⁶ Rather than explaining the differences between the metals and cermets listed, it is first most helpful to understand what products, in particular, are behind the spike. For that, please refer to *Figure 4* directly below, which tracks the top 5 HS Code 81 imports from 2018 to 2022.

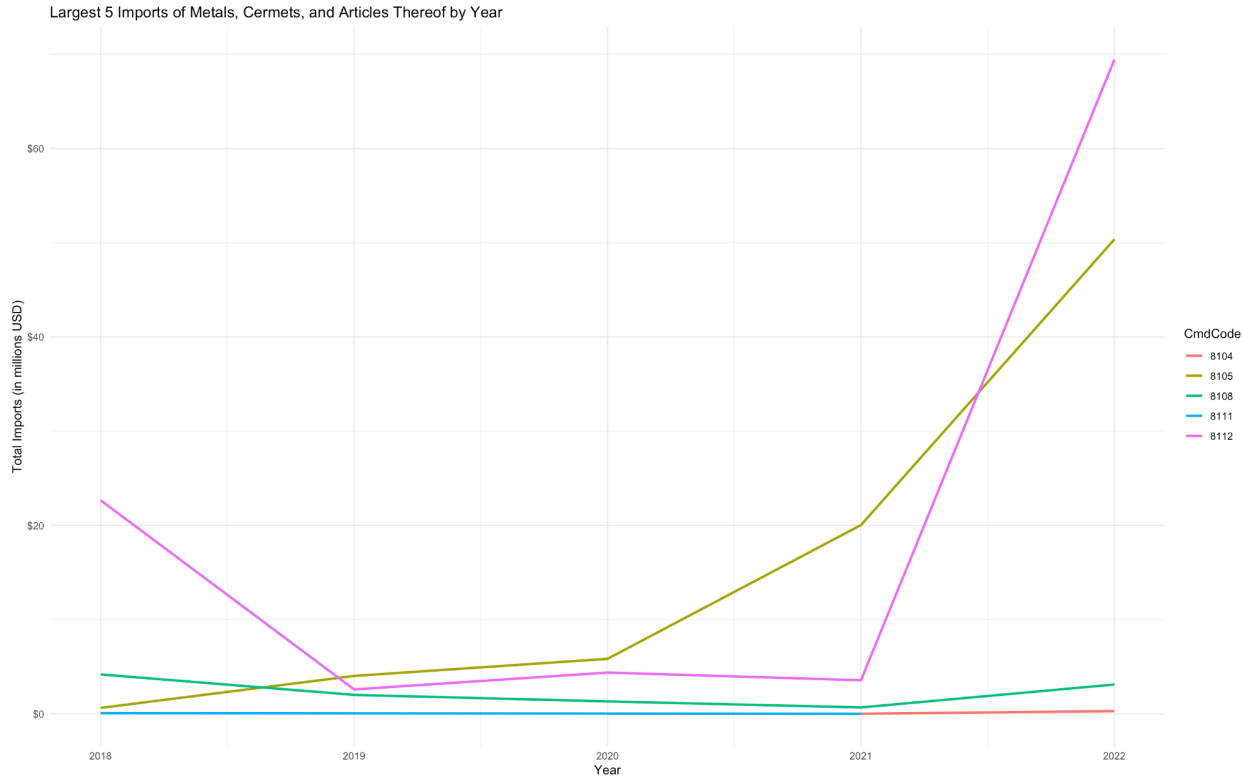


Figure 4
Source: UN Comtrade Database

⁶⁶“Harmonized System Codes (HS Code 2017 - Current).” Foreigntrade.com, Foreign Trade Online, <https://www.foreign-trade.com/reference/hscodet.htm>.

This graph tells us a number of interesting bits of information. First and foremost, this 500% increase in trade is primarily due to an increase in the HS Code (also known as Cmd Code) numbers 8105, cobalt, and 8112, and a grouping of metallic elements—including beryllium, chromium, germanium, vanadium, gallium, hafnium, indium, niobium (columbium), rhenium and thallium. These two product categories spiked significantly between 2021 and 2022, and each had an import value of over \$50 million into the Netherlands.

The next three most imported metals, in descending order, are titanium, magnesium, and manganese.⁶⁷ However, all three of these material groups were imported in marginally higher volumes in 2022 than in years prior. It can thus be conclusively determined that these three metals played little to no role in the increasing imports of HS Code 81.

Because HS Code 8112 is limited in the data available that breaks this product category down into individual raw materials, I will only focus on the import of HS Code 81—cobalt. To better understand how cobalt increased in import volume, I will unpack its trade between these two countries and address the current EU sanctions and other geopolitical forces that may be behind the rise.

Cobalt Trade Between the Netherlands and Russia

Cobalt is a necessary element for many technological components. As mentioned in a previous chapter, cobalt is used in a variety of applications. It's primarily

⁶⁷"Harmonized System Codes (HS Code 2017 - Current)." Foreigntrade.com, Foreign Trade Online, <https://www.foreign-trade.com/reference/hscodet.htm>.

used to make rechargeable batteries that are fueling the growing greenification in the world around us, as well as being a necessary element in car airbags and a catalyst in the petroleum and chemical industries.⁶⁸ Nearly 70% of all global cobalt is mined in the Democratic Republic of Congo; however, Russia is the second largest producer of cobalt, accounting for 4% of the worldwide output. Thus most of the cobalt production power is held by the DRC.

Mining of cobalt in Russia is primarily confined to the Altai Republic region, which is located in Southern Siberia and situated on the Altai Mountain Range.⁶⁹ Over the coming years, it has been reported that the country will seek to boost its cobalt production capacity and is exploring new initiatives such as deep-sea mining in the Western Pacific Ocean.⁷⁰ While the stream of cobalt exiting Russia is much smaller, in comparison to the DKR, it is still the second-largest producer in the world and exports an average of 8,000 tons per year.⁷¹

The Netherlands has found itself as a large purchaser of these exports. In 2021, the country imported \$20,031,214 worth of cobalt at an average price of around \$30 per pound.⁷² This translates to 333.85 tons of cobalt imported from Russia, accounting for 4.17% of all Russian cobalt production. To say that Russian production and the Netherlands' importation of cobalt are linked would be an understatement. As a large

⁶⁸National Minerals Information Center. "Cobalt Statistics and Information." U.S. Geological Survey, U.S. Department of the Interior, <https://www.usgs.gov/centers/national-minerals-information-center/cobalt-statistics-and-information#:~:text=Cobalt%20is%20also%20used%20to,for%20porcelain%20enamels%3B%20high%2Dspeed>.

⁶⁹Britannica, The Editors of Encyclopaedia. "Altay". Encyclopedia Britannica, 7 Aug. 2022, <https://www.britannica.com/place/Altay-republic-Russia>. Accessed 24 April 2023.

⁷⁰ NS Energy Staff Writer. "Profiling the World's Largest Cobalt-Producing Countries." NS Energy, 22 Feb. 2021, <https://www.nsenerybusiness.com/features/top-cobalt-producing-countries/>.

⁷¹Kelly, Lauren. "Top 10 Cobalt Producers by Country (Updated 2023)." INN, INN, 23 Feb. 2023, <https://investingnews.com/where-is-cobalt-mined/>.

⁷²MINING.COM Staff Writer. "Cobalt Prices Supported in 2021, Expected to Fall in 2022 — Report." Mining.com, Mining.com, 26 Nov. 2022, <https://www.mining.com/cobalt-prices-supported-in-2021-expected-to-fall-in-2022-report/>.

customer of Russian cobalt, it would be expected that the raw material's imports would be restricted in the wake of the Russo-Ukrainian war. However, this is not the case.

In fact, the opposite happened. The total value of cobalt imports increased to \$50,363,210 in 2022.⁷³ This represents a 151% percent change from 2021 to 2022. This number is somewhat misleading, however.

Part of this spike in import value can be attributed to the rising cost of cobalt. Toward the end of 2021, cobalt trading analysts predicted that the cost of the material would decrease by 8.3%. Although demand for the metal was rising, analysts forecasted that there would be an even greater increase in the total supply, thereby driving the trading price down.⁷⁴ Yet, in 2022, the exact opposite happened. Rather than decreasing to the predicted \$27.42 per pound price, cobalt shot up to \$41 throughout the entire month of March before later declining to \$25.98 per pound in the month of August (see *Figure 5*). Thus, over the course of the whole year, cobalt averaged \$31.82.⁷⁵

⁷³UN ComTrade. "UN COMTRADE: International Trade Statistics." United Nations, United Nations, <https://comtrade.un.org/Data/Auth/LogIn>.

⁷⁴MINING.COM Staff Writer. "Cobalt Prices Supported in 2021, Expected to Fall in 2022 — Report." Mining.com, Mining.com, 26 Nov. 2022, <https://www.mining.com/cobalt-prices-supported-in-2021-expected-to-fall-in-2022-report/>.

⁷⁵Staff at tradingeconomics.com. "Cobalt 2010-2023 Historical Data." Tradingeconomics.com, Tradingeconomics.com, <https://tradingeconomics.com/commodity/cobalt?embed%2Fforecast>.

Price of Cobalt per Ton (USD) Over the Past Three Years

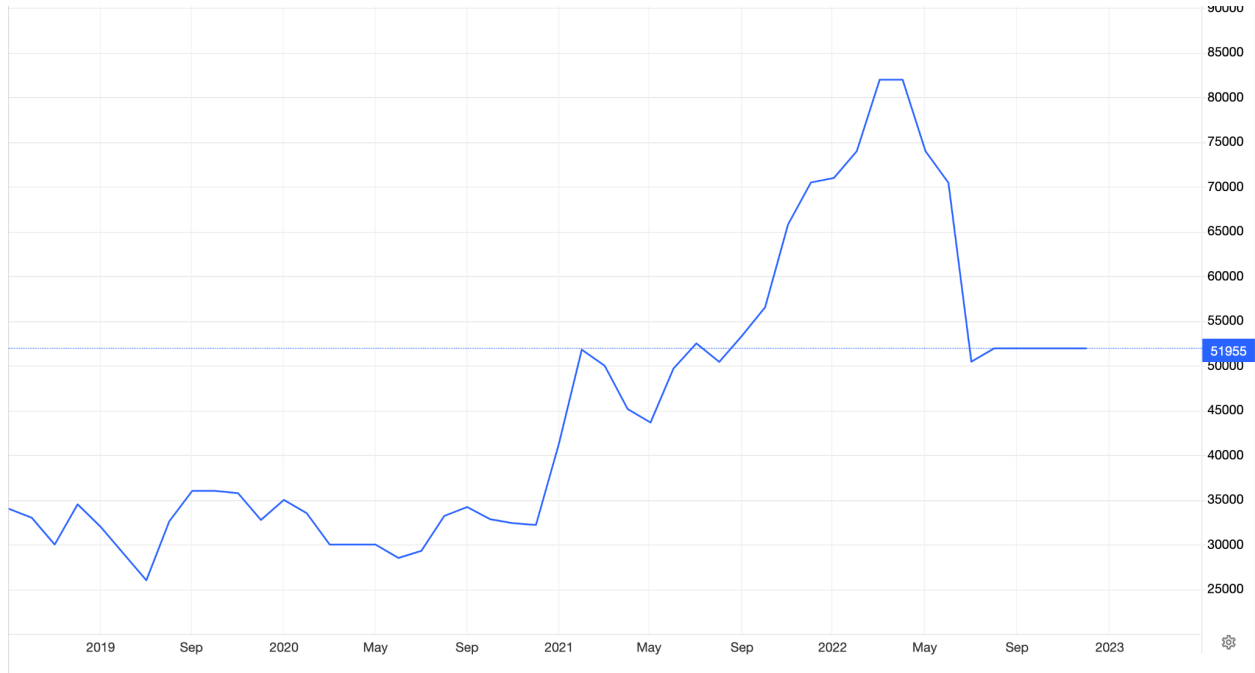


Figure 5
Source: *tradingeconomics.com*

This spike in the price of cobalt during March (see *Figure 5*) also coincides with the spike in the total value of HS Code 81 goods that were imported during March 2022 (see *Figure 3*). Because UN Comtrade data for subgroups within HS Code 81 is limited to displaying the time scale of imported goods in years, not months, we cannot establish causation here. In other words, it is indefinite whether the higher price of cobalt in March is the cause of the higher import volumes during this month. However, considering that the total import volume of cobalt for 2022 was \$50,358,418 and the average monthly price of cobalt in Europe was \$31.82, we can infer that around 791 tons of cobalt were imported during this time period.⁷⁶

⁷⁶UN ComTrade. "UN COMTRADE: International Trade Statistics." United Nations, United Nations, <https://comtrade.un.org/Data/Auth/LogIn>.

If the Netherlands imported 791 tons of cobalt in 2022, this would represent a 137% percent change in the volume of cobalt imports compared to 2021. Even accounting for Russian cobalt production expanding by 11% to 8,900 metric tons per year, this would mean that the Netherlands imported 8.9% of all cobalt produced in Russia in 2022. For reference, the Netherlands only imported 4.17% of Russia's cobalt production in 2021. It is crucial to keep in mind that these numbers infer that companies in the Netherlands imported cobalt at a steady rate and that rising or lowering cobalt prices didn't dictate the total volume of trade—two metrics that are unequivocally disproven. As a result, I would expect that the total tonnage of cobalt imports from Russia would be much lower than 791 metric tons. Even so, we can still draw a rough conclusion: cobalt imports did not significantly decrease in 2022. As a result, our next question should be, *why?*

EU Legislation Regarding Cobalt Imports

Sanctions on the import of cobalt into the EU did not come out immediately. Prior to this legislation, the EU had released four other sanctions packages targeting dual-use goods, freezing the Russian financial system, banning Russian planes from flying in EU airspace, suspending Russian media companies from broadcasting in the EU, and ending the trade of steel, iron, and luxury goods. These subsequent sanctions packages primarily targeted goods, companies, and industries in Russia that would the lives of individuals living in the state significantly more uncomfortable.

All of these sanctions packages were added to the existing document titled, “Council Regulation (EU) 2022/576 of 8 April 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia’s actions destabilizing the situation in Ukraine.”⁷⁷ This document was created in response to Russia’s original aggression in Crimea in 2014. As this conflict was never resolved, the initial sanctions were never removed. As a result, all additional sanctions were added to this same document. In doing so, this emphasizes the EU’s continuity in a stance against Russian aggression in Eastern Europe.

Similar to these other packages, the fifth sanctions package, released on March 9th, was also added to this same document. However, unlike previous packages, this one primarily focused on banning the trade of hundreds of different raw goods and materials. Furthermore, this package also followed up by also issuing a ban on “all Russian vessels from accessing EU ports” and “Russian and Belarusian road transport operators from entering the EU.”⁷⁸ Thus, in one sweeping motion, the EU sought to cut off some of the remaining trade between them and Russia.

The raw goods and materials selected for this sanctions package were done using the criteria of any good whose trade “could contribute in particular to the enhancement of Russian industrial capacities.”⁷⁹ Under this broad framework, the

⁷⁷European Union. “Council Regulation (EU) 2022/576 of 8 April 2022 Amending Regulation (EU) No 833/2014 Concerning Restrictive Measures in View of Russia’s Actions Destabilising the Situation in Ukraine.” EUR-Lex.europa.com, EUR-Lex, 8 Apr. 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2022.111.01.0001.01.ENG.

⁷⁸Staff at European Council. “Timeline - EU Restrictive Measures against Russia over Ukraine.” Consilium.Europa.eu, European Council, 13 Apr. 2023, <https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-over-ukraine/>.

⁷⁹Konig, Olof, and Fredrick Ericsson. “The EU Adopts a Fifth Package of Sectoral and Individual Measures Targeting Russia and Belarus.” Sanctions & Export Controls Update, Baker McKenzie, 11 Apr. 2022, <https://sanctionsnews.bakermckenzie.com/the-eu-adopts-a-fifth-package-of-sectoral-and-individual-measures-targeting-russia-and-belarus/>.

sanctioned goods were then listed by HS code in Annex XXIII. HS Code 8105 (i.e., cobalt) was included in this sanctioned group.

The EU also listed dates on which these sanctions would go into effect. In *Article 3k*, Section 3, the EU stated that these sanctions “shall not apply to the execution until 10 July 2022 of contracts concluded before 9 April 2022 or ancillary contracts necessary for the execution of such contracts.”⁸⁰ Since this legislation came out on April 8th, by banning the creation of contracts after April 9, the intent was to stop affected industries from countering these sanctions measures by drafting up contracts quickly. It should be noted that there is no way of publicly accessing any contracts that might have been created before April 9 at 12:01 AM, although it should be assumed that some enterprises did this.

Further breaking the language in the document down, the July 10th date refers to the execution of these already created contracts. This means that the import of cobalt from Russia into the EU would effectively cease after July 10th.

Finally, the only way to import cobalt into the EU after July 10th would be if the cobalt was “necessary for the official purposes of diplomatic or consular missions of the Member States or partner countries in Russia or of international organizations enjoying immunities in accordance with international law, or to the personal effects of their staff.”⁸¹ While it can be assumed that consulates in member states have no such need

⁸⁰European Union. “Council Regulation (EU) 2022/576 of 8 April 2022 Amending Regulation (EU) No 833/2014 Concerning Restrictive Measures in View of Russia’s Actions Destabilising the Situation in Ukraine.” EUR-Lex.europa.com, EUR-Lex, 8 Apr. 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2022.111.01.0001.01.ENG.

⁸¹European Union. “Council Regulation (EU) 2022/576 of 8 April 2022 Amending Regulation (EU) No 833/2014 Concerning Restrictive Measures in View of Russia’s Actions Destabilising the Situation in Ukraine.” EUR-Lex.europa.com, EUR-Lex, 8 Apr. 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2022.111.01.0001.01.ENG.

for cobalt, there is no publicly available data regarding the import of cobalt under this exception after the date.

The Effect of EU Legislation

Referring to our earlier chapter on sanctions, due to no public cobalt sanctions breaks at the time of this writing, we can infer that this legislation was followed in full by the Netherlands, and cobalt imports ceased after July 10th, 2022. This would also align with the spike that we observed in total HS Code 81 (the commodity group that contains cobalt) imports during the month of March 2022.

By superimposing the global price of cobalt (in price-per-ton) and the Netherlands' imports of HS 81 on the same chart, some interesting findings become apparent. Firstly, Figure N shows us that the Netherlands imported \$40,689,832 of HS Code 81 in the month of March, which is double the annual imports of each of the previous four years. This also coincides with the price of cobalt peaking at \$82,024 per ton during March and April before the price was later reduced. Secondly, the global price of cobalt and the import of HS Code 81 goods appear to have some form of correlation. As trade volumes increase, so too does the price of cobalt. Even more, telling is that after April, the last month when Dutch firms were able to create new contracts with cobalt producers in Russia, the price of cobalt decreased fairly significantly and remained around \$50,000 a ton for the remainder of the year. Clearly, Dutch imports, and the EU sanctions, have some influence on the price of cobalt. This is a topic that will be discussed further in depth in the next sections.

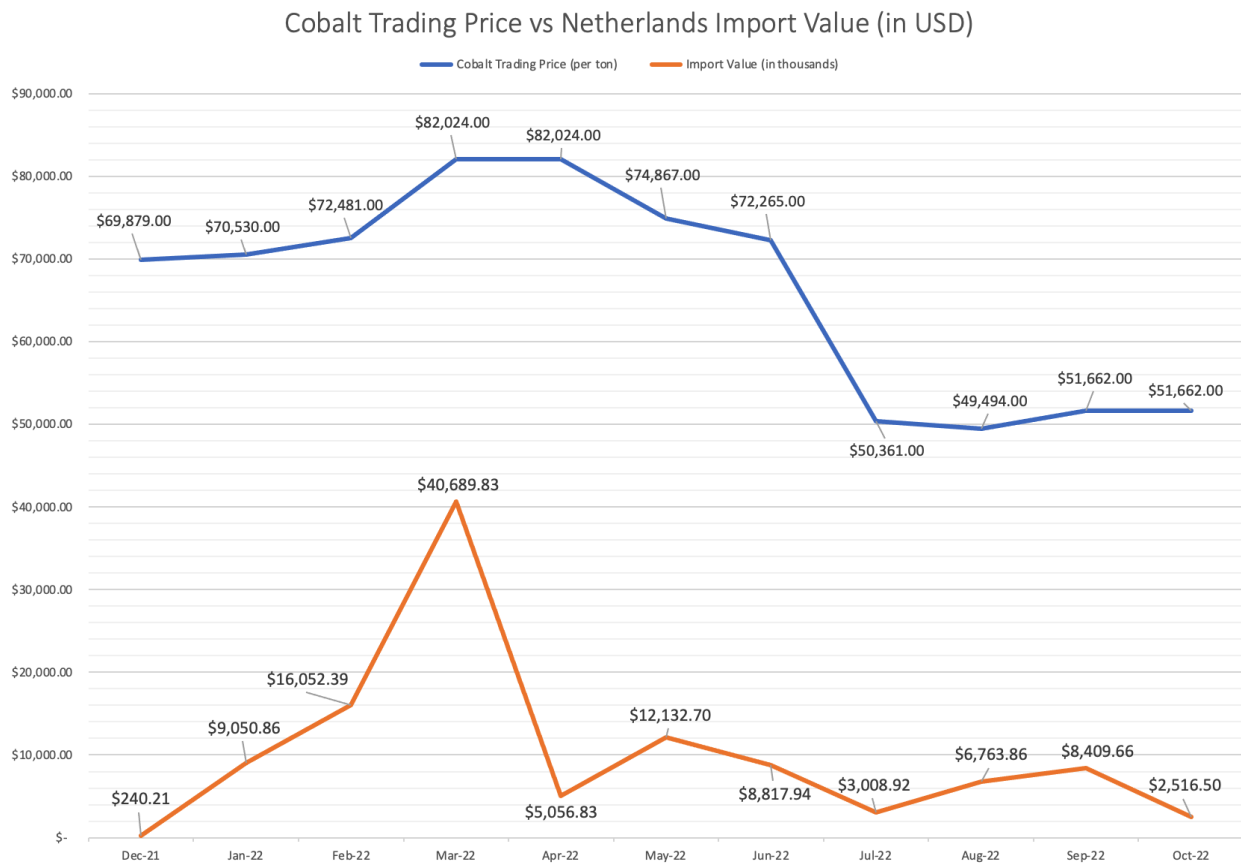


Figure 6
 Source: UN ComTrade Database, tradingeconomics.com

Fear of EU Sanctions Increasing Cobalt Purchases

In December of 2021, companies only imported \$240,210 worth of HS Code 81. This number was later increased to \$16,052,390 by February 2022.⁸² While this does represent a rise in imports, it is marginal when compared to the spike in imports during March 2022, with over \$40,689,830 worth of HS Code 81 entering the Netherlands that

⁸²UN ComTrade. "UN COMTRADE: International Trade Statistics." United Nations, United Nations, <https://comtrade.un.org/Data/Auth/LogIn>.

month alone. The important thing to keep in mind is that the Russo-Ukrainian war began on February 24, 2022—so this spike in imports came directly after Russia invaded.

Using *Figure 6*, we can also observe low trade volume over the month of April and subsequent months. This is most likely caused by Dutch firms following the imposed sanctions on HS Code 81 that went into effect on April 9th and banned imports after July 10th. So, returning to our question earlier, why this spike in March?

It is likely that firms, in anticipation of additional sanction packages, traded a higher volume of HS 81 before the materials were banned. Cobalt is traded publicly on both the futures and spot markets, meaning that its price per ton will fluctuate according to the rules of supply and demand.⁸³ In *Figure 6* above, we can see that for the last month of 2021 and the first two months of 2022, the price of cobalt remained relatively flat. This stagnation aligns with Mining.com's prediction, made in late 2021, that global cobalt prices would decrease during 2022 by 8.3%.⁸⁴ As discussed earlier, this downward trend in price was fueled by the DKR's increasing investments in cobalt mining which would allow supply to outpace demand for the first time in years. Thus, during 2022, the supply of cobalt was set to increase, which would then trigger a decrease in the price per ton of cobalt.

The predicted price drop of cobalt would only be made possible if there was an increase in the world's supply. However, from the perspective of cobalt traders in March 2022, the global supply increase appeared to be bleak as Russia—the second largest

⁸³Balasubramaniam, Kesavan. "Who Sets the Price of Commodities?" Investopedia, Investopedia, 8 July 2022, <https://www.investopedia.com/ask/answers/06/commodityprices.asp#:~:text=Supply%20and%20demand%20play%20a,high%20and%20demand%20is%20low.>

⁸⁴MINING.COM Staff Writer. "Cobalt Prices Supported in 2021, Expected to Fall in 2022 — Report." Mining.com, Mining.com, 26 Nov. 2022, <https://www.mining.com/cobalt-prices-supported-in-2021-expected-to-fall-in-2022-report/>.

producer—was set to receive sweeping sanctions that would cut off its cobalt from many markets around the world. As a result, the global supply of cobalt in March would actually appear to be decreasing, which would then trigger an increase in its price. This is exactly what happened.

Cobalt hit its high from March to April, peaking at \$82,024 a ton. This represents a nearly \$10,000 increase from the price in February.⁸⁵ We can be relatively certain that this price hike is due to the threat of incoming EU sanctions because, in a free market, an 11.6% percent change in the price of a commodity rarely happens randomly; it is triggered by an event. In this case, Russia's invasion.

Furthermore, this price hike occurs precisely when there is an increase in Dutch imports of the product. Between February and March, the Netherlands increased its imports of HS 81 by 253%. It can also be assumed that firms in other EU countries did the same. Such a large uptick in imports would surely strain the global supply of the product. Consequentially, this would then increase the price of cobalt in response to demand.

What is interesting about this situation is that Dutch companies and traders bought massive amounts of cobalt precisely when it was a less opportune time to do so. The price of cobalt should have decreased over the year, yet the largest number of purchases is exactly when the price of the commodity peaked. We can assume these actors are rational beings and not just throwing their profits away. Thus, they would probably only behave this way if they believed that the supply of cobalt was going to

⁸⁵Staff at tradingeconomics.com. "Cobalt 2010-2023 Historical Data." Tradingeconomics.com, Tradingeconomics.com, <https://tradingeconomics.com/commodity/cobalt?embed%2Fforecast>.

continue to shrink and that this was actually an incredible time to buy the mineral before the price rose even further.

The panic buy was therefore triggered by the perceived threat that global supply would decrease through the EU's sanctions. The EU's first four sanctions were clearly sweeping, and few goods in the sanctioned categories were excluded. In the interim between the first and fifth sanctions packages (the one that included cobalt), Dutch companies likely believed that cobalt was soon-to-be-sanctioned. In response, they were incentivized to import a large amount of cobalt from Russia while they were still legally able to do so. While they bought the commodity with inopportune timing, it was hard to predict the ramifications of future sanctions on the global supply chain. From the individual companies' points of view, the price of cobalt could have increased even further after the sanctions went into effect. Lucky for the rest of the world, but unlucky for Dutch firms, their prediction was wrong.

Impact of the Reduced Price of Cobalt to Russia

The threat of sanctions led Dutch actors to import a larger amount of cobalt than they would have otherwise. By not including cobalt in earlier sanctions packages, the EU unintentionally triggered a fire sale of cobalt sparked by the fear of future sanctions. This meant that for the last part of February, the entirety of March, and the beginning of April—companies from the Netherlands bought more of the commodity at a steep price. As a result, millions of euros exchanged hands between these firms and Russian producers. While this influx of foreign cash is marginal, it still likely lessened the blow of

these sanctions in slowing down the Russian economy. Instead of Russia existing on its own island, devoid of trading partners and foreign currency, over these two months, the country had found trading partners and foreign currency through its cobalt supply.

However, the Russian success in its cobalt exports was likely short-lived. Looking back at Figure N, we observe that the price of cobalt continued to decrease throughout 2022, eventually even dipping below the 2021 average price. After the sanctions, Russia lost some of its largest trading partners: the EU and the US. As a result, the country probably struggled to offload some of its cobalt reserves to countries without sanctions on them. Furthermore, they would have been forced to offload this cobalt at a low price point due to the global decrease in the cobalt price per ton. This would mean that less foreign capital would be injected into the Russian economy through the sale of cobalt after the EU's sanctions—which would contribute to the slowing Russian economy.

While it is evident that there was some amount of increased trade in cobalt between the Netherlands and Russia during March 2022, this is still a mere guess. Due to insufficient data regarding the monthly shipments of HS 8105 (cobalt), we can only view them as a part of the larger HS 81 metal group. As mentioned earlier, HS 8105 was one of two compounds out of the metal group that experienced an increase in trade. Thus, we know that it therefore heavily contributed to the spike in HS 81 observed in March; however, we cannot be certain since cobalt imports into the Netherlands aren't reported monthly. This highlights an underlying problem existing with the current methods of evaluating the success of EU Sanctions.

CHAPTER IV: THE ROLE OF DATA IN ASSESSING SANCTIONS

While the EU's sanction legislation, or lack thereof, had an impact on the volume of cobalt entering the Netherlands, I believe that there might be a larger issue hidden in the background. While attending the Greentech Conference for Port Authorities and Terminal Operators, I had the opportunity to listen to panels and keynote speakers from ports around Europe. Many of these conversations centered around the increased role that data, new technologies, and AI played in the port environment. There also appeared to be a laser-like focus on efficiency from both the port authorities and port-related enterprises. Therefore, it's easy to imagine how shocking it was to uncover that many ports in Europe did not share their data publicly. Instead, this data was privatized and seen to be their competitive advantage in an increasingly competitive world. However, keeping Bill of Lading data locked away also carries its disadvantages.

What is a Bill of Lading?

A Bill of Lading (BoL) is defined as “a legal document issued by a carrier (transportation company) to a shipper that details the type, quantity, and destination of the goods being carried.”⁸⁶ This document is carried on every container ship and lists every type of good located on the vessel. Then, when the ship docks at a port, such as the Port of Rotterdam, the document is handed to the port authorities and is subsequently signed by the receiver of the goods. This helps prevent theft throughout

⁸⁶Tarver, Evan. “Bill of Lading: Meaning, Types, Example, and Purpose.” Investopedia, Investopedia, 17 Mar. 2023, <https://www.investopedia.com/terms/b/billoflading.asp>.

the journey of the goods and serves as a receipt of shipment. Ultimately, this document “spells out the type, quantity, and destination of the goods being transported” so that the receiving port understands what goods are entering its domain.⁸⁷

In the EU, due to the public-private ownership of ports and the lack of EU legislation, public BoL data doesn’t exist. Instead, ports only release data monthly to track the flow of goods. On the other hand, in the US, BoL data is publicly available for all goods shipped via vessel. While companies can redact their names from any of these public documents, the types of goods and their quantity that enter the US are all public.⁸⁸ This provides a considerable advantage to researchers and port authorities. Through public BoL data, researchers are able to analyze the US trade over the course of specific events and understand precisely how the markets responded.

What are the Advantages and Disadvantages of Bill of Lading Data?

One such example is “Bill of Lading Data in International Trade Research with an Application to the COVID-19 Pandemic,” published by the Board of Governors of the Federal Reserve System. This paper outlines the “high-frequency data capture features of the within-month collapse of trade between the United States and India” in an attempt to “ show how the data can be used to measure vessel delivery bottlenecks in near real-time.”⁸⁹ Beyond providing research that is similar to the goals of this paper, the

⁸⁷Tarver, Evan. “Bill of Lading: Meaning, Types, Example, and Purpose.” Investopedia, Investopedia, 17 Mar. 2023, <https://www.investopedia.com/terms/b/billoflading.asp>.

⁸⁸Flaen, Aaron, Flora Haberkorn, Logan Lewis, Anderson Monken, Justin Pierce, Rosemary Rhodes, and Madeleine Yi (2021). “Bill of Lading Data in International Trade Research with an Application to the COVID-19 Pandemic,” Finance and Economics Discussion Series 2021-066. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2021.066>.

⁸⁹Flaen, Aaron, Flora Haberkorn, Logan Lewis, Anderson Monken, Justin Pierce, Rosemary Rhodes, and Madeleine Yi (2021). “Bill of Lading Data in International Trade Research with an Application to the

authors also explain why BoL data is so useful. The first benefit of BoL “stems from the fact that shipments are associated with specific firms on both the shipper (exporter) and consignee (importer) side of the transaction.”⁹⁰ By having both parties in a single dataset, they could analyze specific firm characteristics such as “the frequency of shipments per consignee,” which sheds light on individual firms’ procurement systems. The second benefit is its “high frequency.”⁹¹ While official trade data, such as UN Comtrade, is released monthly, BoL tracks shipments daily which allow for the analysis of intra-month shifts in trading data that are not otherwise “observable at the monthly level.”⁹² The third benefit is the timeliness of BoL data. While official trade data lags behind the end of the month by 30 days, BoL data is updated continuously, and it will be “reasonably complete within 10-14 days” after. This allows researchers to observe the trade effects of global events in real time rather than months afterward, lending to better decision-making. The final benefit lies in the ability to “combine transaction level data from multiple trading partners.”⁹³ This allows global supply chains to become observable and links different global trade networks. Most importantly, this is useful in

COVID-19 Pandemic,” Finance and Economics Discussion Series 2021-066. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2021.066>.

⁹⁰Flaen, Aaron, Flora Haberkorn, Logan Lewis, Anderson Monken, Justin Pierce, Rosemary Rhodes, and Madeleine Yi (2021). “Bill of Lading Data in International Trade Research with an Application to the COVID-19 Pandemic,” Finance and Economics Discussion Series 2021-066. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2021.066>.

⁹¹Flaen, Aaron, Flora Haberkorn, Logan Lewis, Anderson Monken, Justin Pierce, Rosemary Rhodes, and Madeleine Yi (2021). “Bill of Lading Data in International Trade Research with an Application to the COVID-19 Pandemic,” Finance and Economics Discussion Series 2021-066. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2021.066>.

⁹²Flaen, Aaron, Flora Haberkorn, Logan Lewis, Anderson Monken, Justin Pierce, Rosemary Rhodes, and Madeleine Yi (2021). “Bill of Lading Data in International Trade Research with an Application to the COVID-19 Pandemic,” Finance and Economics Discussion Series 2021-066. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2021.066>.

⁹³Flaen, Aaron, Flora Haberkorn, Logan Lewis, Anderson Monken, Justin Pierce, Rosemary Rhodes, and Madeleine Yi (2021). “Bill of Lading Data in International Trade Research with an Application to the COVID-19 Pandemic,” Finance and Economics Discussion Series 2021-066. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2021.066>.

understanding the causes of “supply chain shocks across firms and borders.”⁹⁴ Through sharing BoL data, the US opens its trading to become highly researched while lending itself to future policymaking.

In the context of this thesis, if the EU were to require the Port of Rotterdam to make its BoL data public, we could see the volumes of cobalt trade down to the very day, which would shed additional insight into the increase in imports. Then, we could track the buyers of this cobalt to understand its final destination and have a better guess about what it will be used for. We would also be able to understand the broader supply chain of cobalt entering Russia through the Port of Rotterdam and use these findings to make better policy recommendations. Alas, many of these outcomes won't be realized due to insufficient data.

However, publicizing Bills of Lading also comes at a cost to the companies operating within the US. Due to all shipments containing information about the exporter and importer, it is easy to discover new suppliers. In fact, websites that help individuals get into Amazon Drop Shipping will even suggest this as a method for performing market research rather than just searching on Alibaba.⁹⁵ If you are an existing buyer, this can hurt your bottom line considering that specific suppliers can often offer a competitive advantage to the final product through better or cheaper manufacturing.

⁹⁴Flaen, Aaron, Flora Haberkorn, Logan Lewis, Anderson Monken, Justin Pierce, Rosemary Rhodes, and Madeleine Yi (2021). “Bill of Lading Data in International Trade Research with an Application to the COVID-19 Pandemic,” Finance and Economics Discussion Series 2021-066. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2021.066>.

⁹⁵Staff at EcomCrew. “A Secret Weapon for Doing Competitor and Supplier Research in 2023.” EcomCrew, 13 Apr. 2023, <https://www.ecomcrew.com/a-secret-weapon-for-doing-competitor-and-supplier-research/#:~:text=The%20information%20on%20the%20Bill%20of%20Lading%20is%20public%20information%20in%20the%20U.S.>

Publicizing BoL data also hurts ports as their exact trade quantities can be analyzed in near-real time. Often, ports will offer incentives to different buyers for shipping products through them or will focus on building the infrastructure around the import of a singular product, such as the juice terminal in the Port of Rotterdam, which processes over 350,000 tons of fruit juice annually.⁹⁶ While importing juice through this port is a known competitive advantage now, it wasn't always that way. In the past, if BoL data were public, perhaps other ports would have caught wind of the growing juice demand through Rotterdam and the suppliers associated with it and built their infrastructure to compete. Thus, public BoL data can often hurt key competitive advantages that ports maintain.

How Can Public BoL Influence Sanctions?

When it comes down to the improvement of sanctions, having public BoL data is crucial to hold all parties accountable and can lead to better decision-making. In this case, the pros of publicizing BoL data for policymaking far outweigh the potential cons of the competitive advantages offered to individual ports. In fact, if this data was made more available more quickly, we might have witnessed a reduced, or non-existent, spike in the import of Cobalt and similar products.

While researching this spike, I ran into two issues with finding data. First, HS Code 81 (metals and cermets) imports were released on a monthly basis one month in the past. In other words, the January numbers were released at the end of February,

⁹⁶Koosterboer. "Kloosterboer Acquires Juice Terminal in Rotterdam." Kloosterboer, 2014, <https://www.kloosterboer.com/es/sobre-kloosterboer/noticias/360-kloosterboer-acquires-juice-terminal-in-rotterdam>.

and so on. This meant that analyzing a trading spike in this product category would always be retroactive but never in the moment. Second, HS Code 8105 (cobalt) imports are only released to the UN Comtrade database at the end of every year. When researching the effectiveness of sanctions on a shifting geo-political event, this type of delay makes both identifying a potential spike and quickly responding to it with the appropriate legislation impossible.

By lacking current data, policymakers are unable to adjust complex sanction packages to mitigate the substitution effects imposed by the additional importation of certain goods. This results in less effective sanctions overall—a poor outcome considering that sanctions are the primary response to Russia’s aggression from the West.

Even if policymakers do have access to better data sets, independent journalists and news sites are still cut off from reporting on importation increases. Every EU country legally allows freedom of speech and expression.⁹⁷ By reducing the amount of data available for reporters, it's nearly impossible to hold the EU, member states, and individual ports accountable. Furthermore, journalists can often shed light on issues that the EU may have overlooked, leading to better legislation. If journalists could report sooner on increasing imports of cobalt after the start of the war, perhaps the ban on cobalt importation would have appeared in the third or fourth sanctions packages rather than the fifth.

⁹⁷Staff at European Commission. “Freedom of Expression and Information.” European Commission, 4 May 2017, https://commission.europa.eu/aid-development-cooperation-fundamental-rights/your-rights-eu/know-your-rights/freedoms/freedom-expression-and-information_en.

Public BoL data could also benefit private enterprises. For example, companies importing cobalt only know how much of the material they are obtaining. However, they lack knowledge of how much of the product is entering the EU as a whole. They can only infer this by analyzing the fluctuating price of cobalt and guessing the quantities that their competition is purchasing. However, when you introduce fear of an upcoming cobalt shortage, companies are incentivized to purchase higher quantities of cobalt at a higher price point than they would otherwise. Yet, we still observed that the global price of cobalt decreased from the 2021 price per ton by around \$20,000.⁹⁸ This means that in March, the market was not operating efficiently as an oversupply of the commodity was bought, later driving its price down. While companies could not necessarily have predicted the future supply, with increased access to data, they could be significantly more prepared.

The EU mandating that the Port of Rotterdam and other ports across Europe publish their BoL data publicly would obviously require a significant undertaking, and there are many other forces at play here that are beyond the scope of this paper. However, having higher-quality data available leads to better decision-making across the board, ultimately benefiting each and every one of us in the process.

⁹⁸Staff at tradingeconomics.com. "Cobalt 2010-2023 Historical Data." [Tradingeconomics.com](https://tradingeconomics.com), [Tradingeconomics.com](https://tradingeconomics.com/commodity/cobalt?embed%2Fforecast), <https://tradingeconomics.com/commodity/cobalt?embed%2Fforecast>.

CONCLUSION

Given our updated understanding of how the intentions of the EU's sanctions on Russia, the spike in cobalt trade, and the lack of data clouding the accurate measurements—were the EU's sanctions successful? Mostly.

The three primary goals of the European Union's sanction packages were to weaken Russia's economy, to ban the export of military goods and services, and to limit its ability to continue the war against Ukraine. The first two were achieved to some degree. According to the World Bank, "Russia's gross domestic product (GDP) dropped by 2.1%" in 2022.⁹⁹ In addition, more than 5,000 of the total 10,971 sanctions placed on Russia came from the EU, with many of these items being dual-use goods or items with military applications.¹⁰⁰ The third goal of the EU's sanctions—to limit Russia's ability to continue the war against Ukraine—has not yet been realized and must have to be analyzed more in-depth in the future.

While the European Union's sanctions were effective in helping it reach its goals, it could have done better. By delaying the ban on cobalt imports, the EU actually caused a panic buy in the Netherlands which led to more Euros being pumped into Russia, marginally lessening the blow of the existing sanctions. Increased cobalt imports arguably have less of an effect on the Russian war machine than the exportation of guns and munitions, yet it also shows chinks in the EU's sanction policy. Cobalt wasn't the only good to increase trade. Imports to the EU of pharmaceuticals, zinc, aluminum,

⁹⁹Staff at European Council. "Infographic - Impact of Sanctions on the Russian Economy." European Council, 14 Apr. 2023, <https://www.consilium.europa.eu/en/infographics/impact-sanctions-russian-economy/>.

¹⁰⁰Zilli , Renata, and Vanika Sharma. "EU-Russia Trade since the Start of the War – Recoupling for Some, Expansion for Others." ECIPE, European Center for International Political Economy, Feb. 2023, <https://ecipe.org/blog/eu-russia-trade-since-the-war/>.

nickel, silk, leather, and cotton all increased from January 2022 to October 2022.¹⁰¹ The reasons behind each of their increases are unique. Collectively, however, they highlight gaps in the EU's current sanctions policy towards Russia and are "slowing down the pace of economic disintegration between the two regions."¹⁰²

Perhaps these challenges can be addressed through the publicization of Bill of Lading data. Had the Port of Rotterdam and similar ports been forced to share the exact types and amounts of goods entering through them, policymakers could more quickly address and respond to these trade increases. Furthermore, businesses would be less incentivized to participate in buying goods at an inefficient price because they could better predict that they are in a bubble. While publicizing BoL data is certainly non-exhaustive in the ways that the EU could improve upon its sanctions policy, it offers one step forward in the right direction.

Ultimately, the EU's sanctions against Russia were successful in achieving two of their stated goals and are assisting in bringing the war to a close. As a result, the Port of Rotterdam played a crucial role in the proper execution of these sanctions and provided us with a glimpse into the effectiveness of the sanctions across the EU. Moving forward, more research is needed to quantitatively identify what makes sanctions successful and if the EU's sanctions fit that definition. Most likely, such research cannot be conducted until the war ends. As the war continues to rage on, Ukrainians in the midst of the fight can only hope that the EU's sanctions will prove a success in drawing the conflict to a close.

¹⁰¹Zilli , Renata, and Vanika Sharma. "EU-Russia Trade since the Start of the War – Recoupling for Some, Expansion for Others." ECIPE, European Center for International Political Economy, Feb. 2023, <https://ecipe.org/blog/eu-russia-trade-since-the-war/>.

¹⁰²Zilli , Renata, and Vanika Sharma. "EU-Russia Trade since the Start of the War – Recoupling for Some, Expansion for Others." ECIPE, European Center for International Political Economy, Feb. 2023, <https://ecipe.org/blog/eu-russia-trade-since-the-war/>.

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ABOUT THE AUTHOR

Aiden Joshua Forest Brasov was born in St. Louis, Missouri on March 31st, 2001, and moved with his family to Broomfield, Colorado in 2005. He enrolled in the Plan II Honors and Canfield Business Honors Programs at UT in 2019 and studied economics during his junior year at Università Bocconi in Milan, Italy. In college, he was the director of advertising for the student government, a venture analyst at Genesis, and the Vice President of Partnerships at Momentum. He graduated in 2023 and plans to join McKinsey & Company as a Business Analyst in the fall.