LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

Studienabschlussarbeiten
Sozialwissenschaftliche Fakultät

Stengl, Laura:

Transatlantic Sanctions Coherence in the Russia-UkraineWar: A Comparative Analysis of EU and U.S. Sanction Regimes

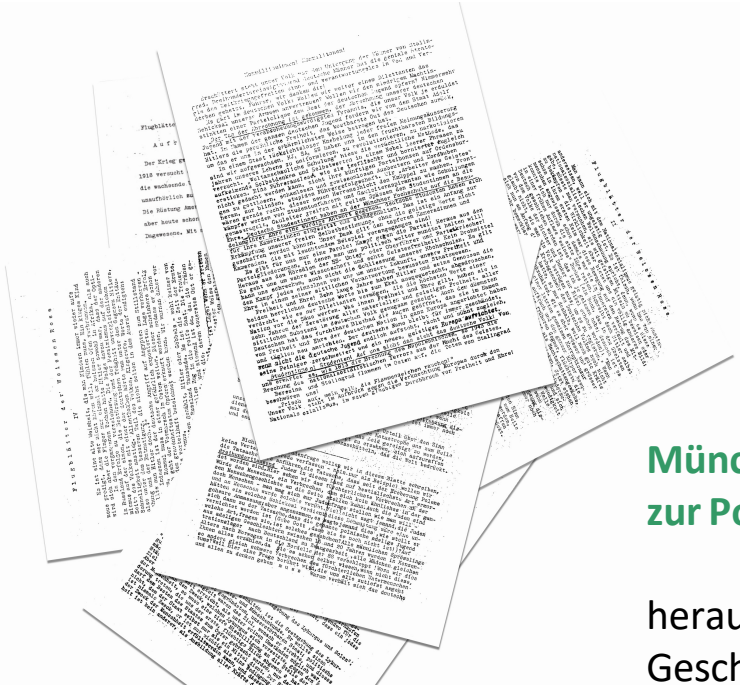
Bachelorarbeit, Wintersemester 2025

Sozialwissenschaftliche Fakultät
Geschwister-Scholl-Institut für Politikwissenschaft
Politikwissenschaft

Ludwig-Maximilians-Universität München

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

GESCHWISTER-SCHOLL-INSTITUT
FÜR POLITIKWISSENSCHAFT



Münchener Beiträge zur Politikwissenschaft

herausgegeben vom
Geschwister-Scholl-Institut
für Politikwissenschaft

2026

Laura Stengl

Transatlantic Sanctions Coherence in the Russia-Ukraine War: A Comparative Analysis of EU and U.S. Sanction Regimes

Bachelorarbeit bei
Prof. Dr. Berthold
Rittberger 2025

Abstract

Sanctions have become an increasingly popular tool in foreign policy. Literature on the effectiveness of sanctions is plentiful, including research on multilateral sanctions. However, sanction coherence, derived from the framework of multilateral sanctions and sender cooperation, remains under-researched. This thesis aims to contribute to closing this gap by examining the conditions under which sanctions coherence between the EU and the U.S. against the Russian Federation is established. I develop a theoretical conceptualization and an explanatory framework for studying transatlantic sanction coherence in the first year of the Russian invasion of Ukraine. Empirically, data are first gathered through a qualitative content analysis following Mayring (2015) to determine variation in sanction coherence and identify explanatory factors. To identify conditions under which sanctions coherence is low, medium, or high, a crisp-set qualitative comparative analysis (QCA) is employed. The results yield three distinct configurational pathways, each associated with one outcome of sanction coherence. Thus, this study contributes to the literature by showing how economic ties, shared foreign policy objectives, and political shock work together to produce distinct outcomes of coherence.

Keywords: Sanctions, Sanction Regimes, Transatlantic Sanction Coherence, United States of America, European Union, Russia, Ukraine, Economic Ties, Shared Foreign Policy Objectives, Political Shock, Qualitative Content Analysis, crisp-set Qualitative Comparative Analysis.

Table of Contents

List of Abbreviations

BIS – Bureau of Industry and Security

CBR – Central Bank of Russia

CFSP – Common Foreign and Security Policy

csQCA – crisp-set Qualitative Comparative Analysis

DV – Dependent Variable

E.O. – Executive Order

EEAS – European External Action Service

EU – European Union

G7 – Group of Seven

IV – Independent Variable

MinFin – (Russian) Ministry of Finance

NATO – North Atlantic Treaty Organization

NWF – National Wealth Fund

OFAC – Office of Foreign Assets Control

OSCE – Organization for Security and Co-operation in Europe

SOE – State-owned Enterprise

TEU – Treaty on European Union

TFEU – Treaty on the Functioning of the European Union

QCA – Qualitative Comparative Analysis

UN – United Nations

U.S. – United States of America

WTO – World Trade Organization

List of Figures

List of Tables

1. Introduction

Since the end of the Cold War, sanctions have become a significant tool in the foreign policy arsenal of states. From coercive tools to smart sanctions, the use of economic pressure as a means for foreign policy has evolved in scope, sophistication, and ambition (Tsouloufas & Rochat, 2023). Since then, research has focused on three primary branches (Martin, 1993): first, single-case studies, which have aimed to explain the impact of sanctions on the policies of the targeted state. Second, scholars have dedicated their work to the effectiveness of sanctions (Peksen, 2019; Morgan & Schwebach, 1997; Tsouloufas & Rochat, 2023). To this day, the question of effectiveness remains a dominant one. Third, some research has started exploring the cooperation of senders in sanctioning cases. This links to prior research about multilateral sanctions, their effectiveness, and impact on the targeted state in international contexts. Thus, the three branches of literature are intertwined. Nevertheless, sender cooperation, specifically coherence between senders, remains a systematically under-researched topic in the sanctions literature (Vahe, 2021).

Since the Russian full-scale invasion of Ukraine on February 24, 2022, there has been an unprecedented level of sanctions cooperation among multiple senders, including the United States, the European Union, the United Kingdom, Canada, Australia, Japan, and specifically agreements within the G7 format (Immenkamp, 2024). This thesis aims to contribute to filling the research gap on sender cooperation by examining the coherence of transatlantic sanctions against Russia from February 22, 2022, to February 25, 2023, with a focus on the two most frequent senders of sanctions since the early 1990s: the U.S. and the EU (Van Elsuwege & Szép, 2023; Fahey, 2023). This case of analysis was chosen because, since the invasion, there has been strong cooperation between the EU and the U.S. This cooperation is visible; however, there is a systematic lack of understanding regarding the degree of coherence of these measures and the conditions under which they are coherent. Furthermore, the U.S. is the most prominent sender of sanctions, followed by the EU (Van Elsuwege & Szép, 2023; Fahey, 2023). Both actors are often portrayed as like-minded liberal actors and are embedded in overlapping multilateral frameworks, making them comparable in this context. Consequently, the thesis addresses the following two research questions:

Research Question 1: How coherent are the EU and U.S. sanctions against Russia between February 22, 2022, and February 25, 2023?

Research Question 2: What explains variation in coherence between EU and U.S. sanctions?

To answer the research questions, a two-fold analytical strategy is employed. To determine variation in sanction coherence and identify explanatory factors, a qualitative content analysis examines relevant primary documents, checking for deductively derived categories (Mayring, 2015). A self-developed coding scheme and MAXQDA are utilized as analysis tools. To explain variation in sanction coherence, a crisp-set qualitative comparative analysis (csQCA) is conducted using the R software. Three distinct configurations leading to low, medium, and high levels of transatlantic sanction coherence are identified.

This work aims to contribute to the literature in several ways. The conceptual contribution is the establishment of a theoretical framework for transatlantic sanctions coherence following Hill (1993) and Vahe (2021). Empirically, this thesis contributes to a systematic analysis of EU-U.S. sanctions measures against Russia, providing valuable insights into transatlantic sanction coordination and thereby helping to fill the research gap on sender cooperation. The methodological contribution lies in the mixed-methods approach, which combines qualitative content analysis and configurational csQCA to study the coherence of transatlantic sanctions.

The thesis proceeds as follows: In Chapter 2, the EU and U.S. sanctions processes are explained individually before being embedded in the transatlantic context. This is essential to understand the foundations of this work. In Chapter 3, the literature on sanctions is introduced through a definition of central terms and their integration into prominent debates in the field of research. This leads to the identification of the research gap of this work, within which the concept of sanction coherence is developed and explained. The theoretical chapter is rounded off with the derivation of the hypotheses. Chapter 4 focuses on the methodology, including case selection and data collection, as well as the mixed-methods approach employed in this study. Chapter 5 includes the empirical results of the qualitative content analysis (Chapters 5.1 and 5.2), as well as the results of the csQCA (Chapter 5.3). Chapter 6 discusses the empirical findings, and Chapter 7 concludes the work.

2. EU and U.S. Sanctions in the Transatlantic Context

2.1. U.S. Sanction Process

The nature of the U.S. and EU sanction processes differs fundamentally (Weber & Schneider, 2020). To assess the transatlantic coherence of sanctioning efforts, it is essential to understand both the U.S. sanctions process and the EU sanctions process.

Given its role in the international system and the dominance of the dollar as world currency, the U.S. is "the most prolific user of sanctions at the world stage" (Van Elsuwege & Szép, 2023, p. 81). Sanctions have been a tool since the nation's early years. Their first use dates back to 1806, with the passage of the Non-Importation Act, followed by the Embargo Act of 1807. Embedded in this pre-World War I context, the U.S. use of sanctions was still largely ad hoc, and their effectiveness was only poorly understood. The same applies to the pre-World War II period and the use of sanctions against Imperial Japan. During the Cold War period, sanctions against the Soviet Union were in place, but they had a limited effect due to the bipolar nature of the international system. In this context, most sanctions were aimed at shaping alliances and establishing networks of partners and clients (Nephew, 2019). Export controls and similar measures were implemented during that time to prevent U.S. adversaries from accessing technology. Following the Cold War, the United States emerged as the new hegemon, shaping the international economy in its favor. Simultaneously, their use of sanctions in global politics increased drastically. Before 1990, the U.S. acted predominantly unilaterally, whereas after 1990, multilateral cooperation gained increasing popularity (Nephew, 2019). One pivotal moment in U.S. sanction strategy was the shift from 'primary sanctions' to 'secondary' or 'extraterritorial sanctions'. In U.S. terminology, 'primary sanctions' refer to measures that restrict access to the United States – whether to its markets, financial systems, or territory – in response to a specific violation. 'Secondary sanctions', by contrast, extend this logic extraterritorially: they threaten to deny access to the United States not because of a direct transgression, but because a foreign entity engages in transactions with another foreign entity already subject to U.S. sanctions (Nephew, 2019). In effect, U.S. policy evolved from penalizing its own nationals and firms, as well as foreign entities operating within U.S. jurisdiction, to coercing third-country actors by imposing penalties for commercial relations with sanctioned parties whose home governments pursue policies deemed objectionable by the U.S. government. This practice remains a subject of criticism by European policymakers and stands in stark contrast to EU sanction mechanisms (Nephew, 2019).

There are two main ways of sanctions regulation in the United States: First, Congress can impose a sanction law that must then be passed by Congress and signed by the President

(Nephew, 2019; Weber & Schneider, 2020). The legal basis for passing congressional laws on foreign commerce is Article I, Section 8 of the U.S. Constitution. By doing so, Congress can fundamentally shape the U.S. economic agenda (Nephew, 2019). Besides specific sanctions law, Congress might also adopt a broader framework law, directing authorities toward the president in sanctioning cases. Those authorities have been established by Congress over time and are viewed as less case-specific, thus addressing problems that may arise at any time (Nephew, 2019). Beyond case-specific statutes, a range of broader legal frameworks provides the president with authorities that can be used in sanctioning cases. For instance, the International Emergency Economic Powers Act (IEEPA) authorizes the President to declare a national emergency concerning a specific country or issue and then impose economic sanctions in response. The Immigration and Nationality Act (INA) empowers the President to deny or revoke visas for individuals considered security risks seeking entry into the United States. The Trading with the Enemy Act (TWEA) empowers the President to declare a foreign country an enemy of the United States and subsequently prohibit a range of economic activities with the associated government and affiliated entities. The Export Administration Act of 1979 (EAA) governs export controls across various goods but has been marked by recurring debates regarding the scope and direction of U.S. export regulation. The Arms Export Control Act (AECA) establishes the legal framework for regulating the export of arms and international trade in such items. The Foreign Assistance Act (FAA) provides a legal basis for administering and conditioning U.S. foreign aid and development assistance programs.

Second, the U.S. President can act through Executive Orders (E.O.) (Weber & Schneider, 2020). E.O.s are legal documents issued by the President to federal agencies, based on constitutional and statutory authority. While they can have effects comparable to legislation in practice, they do not have the same status as an Act of Congress (Nephew, 2019; Weber & Schneider, 2020). Within the E.O.s framework, the president holds broad authority over some terms and conditions of sanctions, as well as the authorities responsible for enforcing his orders. Additionally, within the U.S. government, there are three principal agencies accountable for sanctioning practices: the U.S. Department of the Treasury, the U.S. Department of Commerce, and the U.S. Department of State. The Treasury Department, with its Office of Foreign Assets Control (OFAC), is the executive branch's authority on U.S. sanctions and manages U.S. embargoes. The Department of Commerce, through its Bureau of Industry and Security (BIS), is responsible for enforcing export controls. Finally, the State Department is concerned with the design, enforcement, and diplomacy of sanctions (Nephew, 2019).

2.2. EU Sanction Process

Like the U.S., the EU has also frequently used sanctions, making it "the second most prolific user of unilateral sanctions in the world" (Fahey, 2023, p. 81). More recently, debates on European strategic autonomy have contributed to the increased use of unilateral sanctions outside the UN framework (Fahey, 2023). Due to the absence of a European legal framework, the European Community (EC) mostly implemented UN-mandated sanctions against Rhodesia in 1965 and South Africa in 1977 (de Galbert, 2016; Immenkamp, 2024). The 1980 sanctions against the Soviet Union, following its invasion of Afghanistan, marked the first real coordinated, autonomous step beyond UN frameworks (Immenkamp, 2024). In 1993, the Maastricht Treaty came into force, establishing a legal basis for the implementation of intergovernmental sanctions. Within the framework of the Common Foreign and Security Policy (CFSP), European sanctioning efforts were significantly strengthened and coordinated, enabling the EU to adopt sanctions through unanimous Council decisions (de Galbert, 2016; Immenkamp, 2024; Weber & Schneider, 2020). Consequently, the supranational body has become the second most frequent sender of sanctions after the U.S. since the early 1990s (Weber & Schneider, 2020). Precedents of the CFSP already existed, such as the European Political Cooperation (EPC) in the 1970s and 1980s (e.g., the Falklands War in 1982; the China arms embargo in 1989). With the Kosovo crisis, which began in 1998, the EU expanded its sanctioning efforts as it faced direct confrontation in its neighborhood. It marked a turning point insofar as it showed the EU's willingness to act without UN authorizations and autonomously within its CFSP. Paradoxically, the EU's enlargement, which began in 2004, did not slow down the EU's evolution in sanctions policy (de Galbert, 2016). In contrast, the number and scope of regimes grew. The creation of the European External Action Service (EEAS) in 2010 enhanced coordination and expertise in sanction regimes against Iran (2010), Syria (2011), and Russia (2014), exemplifying this maturation (de Galbert, 2016; Immenkamp, 2024).

Classical measures included economic embargoes, but with the UN embargo on Iraq (1990-2003), humanitarian concerns arose, spurring the rise of targeted sanctions, such as asset freezes, visa bans, and arms embargoes — intended to affect elites rather than populations (Immenkamp, 20924). Over time, the EU has also developed horizontal (thematic) regimes addressing terrorism, human rights violations, cyberattacks, and chemical weapons. This aligns with the primary objectives of EU sanctions, as codified in Article 21 of the Treaty on European Union (TEU), which include maintaining international peace and security, promoting human rights, and supporting democracy (Immenkamp, 2024; Weber & Schneider, 2020). Currently,

the EU maintains over 30 country-specific and four thematic regimes. In the future, a new global anti-corruption sanctions regime is also expected to be established (Immenkamp, 2024).

The EU sanction adoption process is two-fold:

1) Political decision: The Council, acting unanimously under Article 29 TEU on a proposal from the High Representative of the Union for Foreign Affairs and Security Policy, adopts the CFSP decision (Immenkamp, 2024; Weber & Schneider, 2020).
2) Implementation regulation: Adopted by qualified majority under Article 215 of the Treaty on the Functioning of the European Union (TFEU) on a joint proposal from the High Representative and the European Commission.

Member states must implement measures in non-EU competencies, such as arms embargoes and visa bans. The European Parliament is merely informed, not involved in the decision-making process. Hence, the Council, Commission, and EEAS are the three crucial institutional actors (Immenkamp, 2024).

2.3. Patterns of Coordination and Divergences

The transatlantic cooperation in sanctioning cases lacks a binding legal framework, yet there is de facto cooperation based on shared strategic interests. Hence, coordination occurs through diplomatic consultation, intelligence sharing, and informal policy dialogue, such as G7, NATO, or EU-U.S. summits (Fahey, 2023). A quantitative overview of patterns of convergence reveals that between 1989 and 2015, 290 cases of sanctions were imposed by either or both sides, of which 54 were joint sanctions (Weber & Schneider, 2020). The measures substantially overlapped in target selection and regional focus. Although the U.S. issues more sanctions, joint efforts demonstrate increasing coordination and similar intensity levels. Since 2005, transatlantic sanction policies have become increasingly aligned (e.g., the Iran nuclear program, Syria, and Russia in 2014) (Lohmann, 2016). February 24, 2022, can be seen as a turning point in transatlantic sanctioning efforts, as the Russian invasion of Ukraine "triggered an almost never-seen transatlantic coordination to impose sanctions against Russia" (Fahey, 2023, p. 87). Despite the convergences, enduring divergences in structural, legal, and strategic nature remain that shape the transatlantic partnership. The willingness to cooperate does not automatically create a perfect foundation for alignment. Firstly, there are structural divergences, as U.S. sanctions are often open-ended and broader in scope, remaining in force until actively lifted; EU measures, on the other hand, tend to be periodically renewed and more targeted, as already mentioned above (Immenkamp, 2024). Furthermore, EU decisions require unanimity, whereas U.S. sanctions can be imposed by presidential E.O.s, granting far greater agility. Additionally, EU-U.S. designation lists frequently differ in detail (e.g., Russia, 2014). Secondly, the U.S. use

of secondary sanctions is criticized by European policymakers, who accuse the U.S. of creating a “U.S. sanctions overreach” (de Galbert, 2016, p. 2) as well as a structural imbalance. The EU’s institutional fragmentation, in terms of national enforcement, limited intelligence sharing, and multiple competent authorities, weakens its ability to resist or counter U.S. dominance (de Galbert, 2016; Immenkamp, 2024). Lastly, internal EU constraints and implementation gaps complicate the coordination process. The divergent national interests of EU member states further complicate decision-making within the Union, as unanimity among the 27 member states can lead to delays and occasional blockages, as seen in cases such as Belarus in 2017, Venezuela in 2017, or Cyprus in 2020 (Immenkamp, 2024). After adoption, implementation is decentralized: as a study has shown, more than 160 national competent authorities across the EU are involved in sanctioning efforts, leading to inconsistent enforcement. The EU resembles a “mosaic of practices” (Immenkamp, 2024, p. 11) in this sense.

Shared geopolitical threats (Russia, Iran, China) have renewed the transatlantic agenda, but disputes over extraterritoriality and the scope of U.S. sanctions persist (Fahey, 2023). Under the Biden administration and following Russia’s full-scale invasion of Ukraine, transatlantic sanctions coordination reached an unprecedented level- more synchronized than at any point since 1945 (Fahey, 2023). Transatlantic sanctions policy has evolved from episodic cooperation into a strategically coordinated, though asymmetrical, partnership (de Galbert, 2016; Fahey, 2023). While crises have fostered unprecedented unity, structural and conceptual imbalances remain: U.S. dominance, EU fragmentation, and differing philosophies of economic coercion (de Galbert, 2016; Fahey, 2023). The durability of this cooperation will depend on institutional adaptation and mutual respect for autonomy within a shared strategic framework.

3. Theoretical Framework

3.1. Conceptual Foundations of Economic Sanctions

The modern theoretical foundation of sanctions dates back to the 1960s and 1970s, when scholars first started to conceptualize sanctions as economic measures. Sanction literature provides various definitions. Historically, sanctions are understood as broad economic restrictions imposed on a targeted state to achieve specific political objectives (Lohmann, 2016, p. 933). Those restrictions are government-inspired, stemming from customary trade or aid relations, and are intended to promote political objectives (Marinov, 2005, p. 566). Tsouloufas & Rochat (2023) cite Afesorgbor's (2019) definition of economic sanctions, which are "actions that a sender takes to limit or end economic relations with a target in an effort to persuade the target state to change its objectionable policies" (Tsouloufas & Rochat, 2023, p. 286). Thus, by definition, a sanction must fulfill two main criteria: (1) there are at least two actors, the sender and the target, and (2) the sender implements sanctions to influence the behavior of the target (Bapat & Krustev, 2009, p.94). In his definition, Lindsay refers to trade sanctions, which can be understood as measures used by one party to disrupt trade relations with another to achieve political objectives publicly. In his definition, he also distinguishes sanctions from solely economic pressure and trade curbs. Sanctions are public in nature and contain political objectives, whereas economic pressure and trade curbs do not (Lindsay, 1986, p.154). Sanctions can be implemented unilaterally (by one sender), multilaterally (by a coalition of senders), or through institutionalized mechanisms (Tsouloufas & Rochat, 2023). Institutionalized sanctions here refer to UN sanctions, such as those against the Iranian regime. Unilateral sanctions are adopted outside of the UN framework of sanctions by one player, such as the U.S. sanction regime against Cuba. All three forms of sanctioning follow different logics (Weber & Schneider, 2020). This thesis adopts a straightforward definition of sanctions, which are defined as measures implemented by one or more senders to achieve political objectives and influence the target's behavior.

Having established a clear working definition, the focus now lies on typologies and objectives of sanctions. Broadly, sanctions can be categorized into two main types: economic measures (e.g., trade and financial restrictions) and diplomatic measures (e.g., travel and visa bans) (Tsouloufas & Rochat, 2023). Furthermore, sanctions can be clustered into a broader framework of comprehensive and targeted sanctions. Targeted sanctions are also referred to as 'smart' sanctions, as they focus, for instance, on a specific part of the economy, aiming to cause less harm to the broader population. Sanctions follow different objectives. Barber (1979) offers a widely established typology of sanctions, clustering them into primary, secondary, and tertiary

objectives. Primary objectives concern the behavior of the targeted state. Most scholars have focused on the primary objectives. It is essential to note that these objectives are diverse in their own right. For instance, they might focus on inducing political change in the targeted state, punishing, deterring, or weakening the target. Secondary objectives focus on the sender's reputation and interest. Although many studies have focused on the primary objectives of sanctions, some scholars have turned to their secondary purposes to explain why governments persist in introducing or applying sanctions. Tertiary objectives pertain to broader, international systemic considerations. Thus, a state may try to defend the balance of power or ensure the coherence of a regional grouping. All these three sets of goals can be complementary or competing. Furthermore, when applying economic sanctions over a prolonged period, the objectives may shift (Barber, 1979).

Lindsay (1986) expanded on this categorization of sanction goals by clustering them into five broad categories: compliance, subversion, deterrence, international symbolism, and domestic symbolism. Compliance refers to the imposition of sanctions to alter the target's behavior, whereas subversion involves the removal of the country's leader or the entire system. To deter a targeted state means preventing it from redoing the same action in the future. States may also impose sanctions to send signals to international audiences or to consolidate domestic political legitimacy. Lindsay's typology offered a crucial shift from the assumption that sanctions were purely coercive tools toward a recognition that they also serve expressive and domestic political purposes. The conceptual consensus emerging from this literature is that sanctions are a multifaceted political tool whose understanding has shifted heavily from early Cold War and post-World War II notions of sanctions to today's more complex interpretation.

3.2. Sanctions Effectiveness and Success Conditions

From the early years of research, scholars have tried to answer two main questions regarding sanctioning cases: first, the question of why states impose sanctions. Second, whether these sanctions are effective[1] or not (Peksen, 2019). Most studies from the 1960s to the 1990s have concluded that sanctions were largely ineffective as tools of foreign policy (Barber, 1979; Lindsay, 1986; Morgan & Schwebach, 1997; Peksen, 2019; Tsouloufas & Rochat, 2023). Thus, the assumption was that sanctions primarily serve as symbolic tools with limited impact, specifically in changing the target's behavior (Barber, 1979). Over time, the black-and-white logic of sanction effectiveness has become more nuanced, with researchers attempting to

[1] Effectiveness and Success are used interchangeably, as there is no consensus on the terminology in sanction literature.

understand the circumstances under which sanctions are effective. The debate shifted from a binary judgment to conditional explanations, focusing on the degree of effectiveness (Morgan & Schwebach, 1997; Peksen, 2019). The literature can be clustered into different determinants of sanction success. First, the type of objective: as already mentioned, sanctions often fail to fulfill their primary objective, such as political regime change (Barber, 1979). If they aim at less ambitious goals (e.g., a prisoner release), they have higher chances of being effective (Lindsay, 1986; Peksen, 2019). Second, alliance structures: a country can push for conformity in sanctioning cases when countries are allies or embedded in the same security arrangements. Hence, alliance structure matters (Peksen, 2019). Third, international organizations and cooperation: International cooperation refers to multilateral sanctions under the supervision of international organizations, which tend to be more effective than unilateral sanctions or sanctions imposed by an ad hoc coalition (Bapat & Morgan, 2009; Peksen, 2019; Portela, 2014; Tsouloufas & Rochat, 2023). Fourth, economic ties: while Barber (1979, cited from Tsouloufas & Rochat, 2023, p.290) and Doxey (1980, cited from Tsouloufas & Rochat, 2023, p.290) argued that the effectiveness of sanctions is primarily determined by the degree of pressure exerted on the targeted state, Filipenko et al. (2020, cited from Tsouloufas & Rochat, 2023, p.290) demonstrated that their effectiveness is equally contingent upon the economic interdependence between the sender and the target. Fifth, political regime type: paradoxically, literature has shown that sanctions are more effective when directed against democratic regimes than authoritarian ones (Tsouloufas & Rochat, 2023; Peksen, 2019; Escribà-Folch & Wright, 2010; Major, 2012). Sixth, targeted vs. conventional sanctions: Some studies argue that broad, conventional sanctions tend to be more effective than narrowly targeted ones, particularly when ambitious goals are pursued (Drezner, 2011; Peksen, 2019). Seventh, economic costs: the greater the economic costs of the sanctioning practice for the sender, the more effective it will be, as credibility also rises (Peksen, 2019; Morgan & Schwebach, 1997; Tsouloufas & Rochat, 2023). Eighth, the threat of sanctions: often, sanctions fail because the threat of imposing them is so effective. Ultimately, desired outcomes may be achieved simply by threatening (Bapat et al., 2013; Morgan et al., 2009; Morgan & Schwebach, 1997). Last, domestic stability: in times of domestic instability, there is a “window of opportunity” (Major, 2012, p. 79) when sanctions are the most effective (Tsouloufas & Rochat, 2023).

3.3. Concept of Coherence

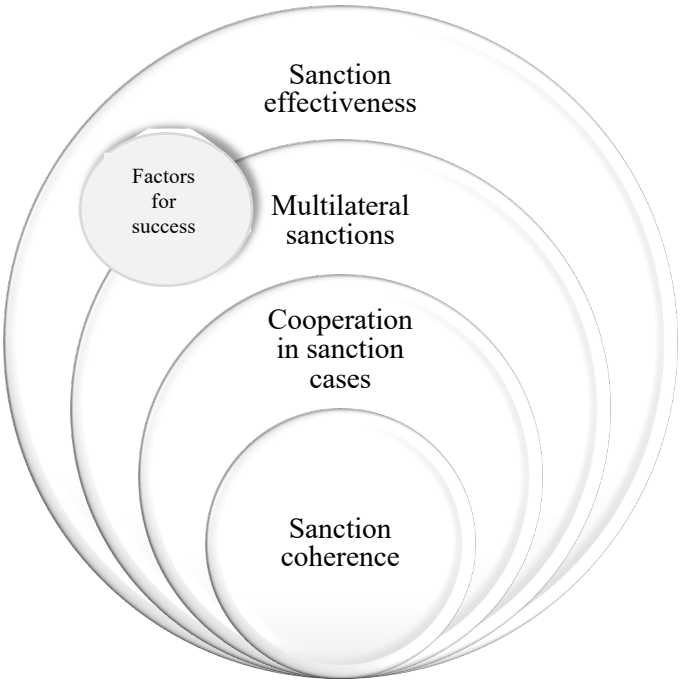
Ever since sanctions became a central foreign policy tool, research has focused on one of the following three branches (Martin, 1993): First, single-case studies with a focus on the impact of the sanction on the target's policies. Second, scholars who dedicated their work to the effectiveness of sanctions as explained above (Peksen, 2019; Morgan & Schwebach, 1997; Tsouloufas & Rochat, 2023). Third, the question of cooperation within sanctioning cases. To date, the literature on sanctions has lacked in-depth research on sanction cooperation, despite a significant increase in sanction cooperation in the last decades (Borzyskowski & Portela, 2016; Vahe, 2021). The focus was on internal processes of sending actors, ignoring the interplay between them (Borzyskowski & Portela, 2016; Wei, 2025; Vahe, 2021). Even if studies have been conducted on sanction cooperation, they have lacked a systematic definition of these interactions. Cooperation, joint action, overlap, cohesion, coherence, and consistency are used synonymously and interchangeably, creating confusion and hindering in-depth research about the actual dynamics between sanction senders. This thesis contributes to the existing literature by distinguishing between these terms and establishing a clear theoretical framework for analyzing the coherence of sanctions.

Cooperation is understood as the process of coordination and joint decision-making between two or more senders, often through diplomatic consultation (Borzyskowski & Portela, 2016; Martin, 1993). In sanction literature, the term “cohesion” is used to explain (in-) effective sanction implementation or continuation, either focusing on internal EU dynamics (Portela et al. 2020) or transatlantic interactions (Lohmann, 2016; Vahe, 2021). Coherence has been defined by political scientists and legal scholars in many ways (Portela & Raube, 2009). Hillion (2008, cited from Portela & Raube, 2009, p.9) defines coherence “beyond the assurance that the different policies do not legally contradict each other, [as] a quest for synergy and added value in the different components of EU policies”. In contrast to consistency, which “refers to the absence of contradiction” (Portela & Raube, 2009, p. 3), coherence is defined by the creation of synergies between two actors. Coherence is not a dichotomous but a continuous variable, allowing for the analysis of different degrees of coherence (Portela & Raube, 2009). The limited literature on sanction coherence reveals two research gaps. First, sanction coherence is primarily analyzed with a focus on the internal processes of a single sender, notably EU foreign policy coherence, while ignoring coherence between multiple senders (Hill, 1993; Portela & Raube, 2009, 2012; Portela et al., 2020). Secondly, incoherence was often treated as the independent variable in research (Portela & Raube, 2009). This thesis aims to close these gaps by establishing a clear framework for analyzing sanction coherence between two senders.

Therefore, coherence refers to the degree to which the resulting policy outputs are aligned in timing, scope, and content. It thus measures the outcome of cooperation, not the process itself. Summing up, coherence is closely linked to cooperation. In the case of multilateral sanctions, cooperation between different senders is of utmost importance. Sanctions implemented in tandem, targeting the same sectors and actors, and overlapping measures and objectives ensure the effectiveness of those sanctions (Portela & Raube, 2009; Vahe, 2021). This illustrates the interconnectedness between effectiveness, multilateral sanctions, cooperation, and coherence, as shown in Figure 1 below.

Figure 1

Concept of Sanction Coherence



This thesis builds upon the frameworks established by Hill (1993) and Vahe (2021) to define and measure coherence. In his study, Christopher Hill (1993) analyzes the EU's internal sanction coherence by establishing three leading indicators: shared intentions, uniform implementation, and compatibility with political objectives. Vahe (2021) then broadens the framework by looking at implementation timing, sanction measures/ comprehensiveness, and policy goals. For this thesis, a three-dimensional indicator model is the foundation for measuring coherence. The indicators are loosely linked to literature, but modified to assess sanction coherence in this specific case:

1. Decision timing: How closely are sanction announcements timed?
2. Targeted Sector and Applied Instruments: How identical are the targeted sectors and applied instruments?
3. Framing of Institutional Coordination: To what extent do actors frame their institutional coordination rhetorically?

Thus, coherence can be clustered into three dimensions: *decision timing* as temporal coherence, *targeted sectors and applied instruments* as substantive coherence, and the *framing of institutional coordination* as communicative coherence. Jointly, these three dimensions constitute the dependent variable, *transatlantic sanctions coherence*. This overlap in synchrony, substance, and signaling serves as an indicator of the dynamics of transatlantic unity versus fragmentation.

3.4. Set-theoretic Hypotheses

Building on the conceptual discussion of sanctions coherence (Hill, 1993; Portela, 2014; Vahe, 2021) and the institutional characteristics of EU and U.S. sanctions processes (Weber & Schneider, 2020; Fahey, 2023), this section develops hypotheses that guide the empirical analysis, considering various factors, e.g., structural, strategic, and economic ones (Riddervold & Newsome, 2022). The hypotheses translate the theoretical insights of the previous chapters into observable expectations regarding the conditional paths under which different outcomes of transatlantic sanctions coherence might be explained. First, when considering sanctions as a tool of economic statecraft, the economic ties between the sender and the target are essential to consider (Peksen, 2019; Morgan & Schwebach, 1997; Tsouloufas & Rochat, 2023). Sanction literature primarily focuses on the target's dependency on the sender's economy, ignoring the sender's dependency on the target, specifically in cases where the target is an atypical one. In this case, the sender pair is dyadic, comprising the U.S. and the EU as players, with both parties having distinct economic ties with Russia. Economic asymmetries – such as Europe's (sender)

energy dependence on Russia (target) – create diverging incentives and lower the likelihood of joint measures (Escribà-Folch & Wright, 2010; Tsouloufas & Rochat, 2023). Hence, unbalanced economic ties between the sender dyad and the target are expected to act as a constraining factor for the coherence of transatlantic sanctions.

Second, shared strategic goals are a strong facilitator for coherent action in foreign policy (Hill, 1993; Portela, 2014; Raube & Rubio, 2022). When both actors pursue the same foreign policy objectives, coordination and complementarity are facilitated (de Galbert, 2016; Fahey, 2023; Wei, 2025). Diverging worldviews or strategic priorities, by contrast, result in fragmented sanctions efforts.

Third, crises of high political salience tend to trigger faster and more aligned policy responses because, in certain situations, governments, influenced by expectations from domestic or international audiences, are expected to react strongly to the target's behavior (Riddervold & Newsome, 2022). Sanctions then provide the means of making this demonstration (Lindsay, 1986). Moments of acute conflict, such as military invasions or humanitarian atrocities, can create a 'window of opportunity', thereby overcoming bureaucratic fragmentation and fostering unprecedented unity (Major, 2012; Fahey, 2023). Therefore, urgency functions as a catalyst for political alignment and thus coherence. In line with the set-theoretic logic of csQCA, the following configurational hypotheses can be made:

One expected sufficient path to low coherence occurs when constraining economic ties among the sender dyad vis-à-vis Russia are present, shared foreign policy objectives diverge, and no political shock is present, leading to the configuration:

$$\mathbf{X1*\sim}\boldsymbol{X2}\mathbf{*\sim}\boldsymbol{X3} \rightarrow \mathbf{Y0}$$

Medium coherence is not only an intermediate state of coherence, but a full outcome on its own. For it to occur, economic ties between the sender dyad and Russia must be present, constraining coherence. At the same time, at least one facilitating factor – such as shared foreign policy objectives or a political shock – must also be present. The sufficient set-theoretic expression would be:

$$\mathbf{X1*(X2 + X3)} \rightarrow \mathbf{Y1}$$

The sufficient causal path underlying high coherence can be explained by the absence of constraining economic factors between the sender dyad vis-à-vis Russia and the presence of shared foreign policy goals and political shock:

$$\mathbf{\sim}\boldsymbol{X1}\mathbf{*X2*X3} \rightarrow \mathbf{Y2.}$$

4. Methodology

The thesis employs a small-n, y-centered qualitative-comparative case study design (George & Bennett, 2005). Case studies with a small number of cases are still met with skepticism, as the research designs often are not rigorous and generalizable enough (Yin, 2018). Nevertheless, case studies are "most likely to be appropriate for *how* and *why* questions (Yin, 2018, p. 61) and extreme or unusual cases, deviating from theory (Yin, 2018). Thus, case study design has long established itself alongside quantitative-statistical and interpretative-reconstructive designs in political science (Wagemann et al., 2020). This research interest is twofold: first, to address Research Question 1, the coherence of EU and U.S. sanctions against Russia is examined; and second, to answer Research Question 2, the variation in transatlantic sanction coherence is explained. Therefore, a two-step analytical strategy is employed. A qualitative content analysis with deductively derived categories determines the outcome variation and explanatory factors (Mayring & Fenzel, 2014), while a crisp-set QCA provides configurational paths to explain the variation of transatlantic sanction coherence (Cronqvist, 2019; Thiem, 2022; Wagemann et al., 2020). This chapter proceeds as follows: First, the case selection and data collection are explained. Second, Mayring's (2015) qualitative content analysis is introduced, along with the established coding scheme. Third, the method of crisp-set qualitative comparative analysis is explained.

4.1. Case Selection and Data Collection

The case universe comprises all transatlantic sanctions decisions by the EU and the U.S. from February 22, 2022, to February 25, 2023, that were enacted in response to Russia's invasion of Ukraine. This includes two sanction regimes (EU and U.S.), which comprise nine sanction episodes within the analyzed timeframe[2]. The first year of the invasion constitutes a theoretically and empirically coherent temporal window for analysis, as early phases of major international crises concentrate political shocks, shifts in foreign policy objectives, and rapid institutional reactions. The theorized independent variables are thus expected to have the most pronounced effect. Furthermore, institutional and political structures remained unchanged throughout the year, ensuring comparability. In this research, a case represents an episode of transatlantic sanctions policy, which is used to measure coherence along the three dimensions. The study focuses on sanctions against Russia for three main reasons: (1) Russia is an unusually powerful target of sanctions, (2) the invasion as an exogenous shock sparked unprecedented

[2] Ten EU sanction packages were introduced in that timeframe but given the lack of corresponding U.S. primary documents in one case, this case had to be removed from the analysis, resulting in a small-N design with 9 cases.

transatlantic cooperation to impose sanctions, and (3) there is a clear need for updated analysis in the post-2022 context (Fahey, 2023; Gel'man, 2023; Szép, 2022). Despite institutional, legal, and economic differences between the EU and the U.S. regarding sanctions, they remain a key tool in their respective foreign policy arsenals (Delreux & Keukeleire, 2022; Vahe, 2021). The U.S. remains the world's leading sender of sanctions, while autonomous sanctions by the EU are also on the rise (Borzyskowski & Portela, 2016). Furthermore, the European Union adopted most of its autonomous sanctions in tandem with the U.S. or close allies (Immenkamp, 2024). As major global powers and close allies, they are often portrayed as like-minded liberal actors, lead major international institutions, and are deeply connected through trade and defense, including NATO (Weber & Schneider, 2020). Situated in the context of the new Biden administration (2021-2025), the 46th president of the United States of America promised to deepen transatlantic cooperation and policy coherence after four years of Trump's 'America First Policy' (Fahey, 2023; Raube & Rubio, 2022). To anticipate a common counterargument – that transatlantic relations have always been characterized by disagreement and thus never fully coherent – there is relevant research indicating that coherent cooperation and collaboration between the two actors have occurred (Raube & Rubio, 2022). In this sense, coherence emerges as an explicit objective of transatlantic cooperation, recalling the importance of already established "habits of cooperation" (Smith, 2022, cited from Raube & Rubio, 2022, p. 177). From a governance perspective, coherence enhances the effectiveness of policy outcomes, making it essential to assess academically. Finally, the transparency and extensive public documentation on both sides support such research.

The selection of primary sources was chosen in accordance with the research interest. Legal primary measures are anchored in EU Council Regulations and Decisions, as well as U.S. Executive Orders, Directives, and Determinations. These documents were gathered from the Official Journal of the European Union (EUR-lex) and the U.S. Federal Register. To analyze political communication, particularly communicative coherence, press releases from the Council and OFAC were collected from the official European Commission website and the official OFAC website. With these documents, all dimensions of the DV – temporal coherence, substantive coherence, and communicative coherence – can be analyzed. To capture the IVs, various documents were analyzed, allowing for comparability among them. Naturally, joint EU-U.S. statements, G7 communiqués, NATO statements, and a WTO statement best capture shared security and economic perceptions. Furthermore, the following EU documents were gathered: statements by the High Representative, Josep Borrell, EEAS Joint Statements, Council Conclusions, and the European Council's Versailles Declaration. Matching U.S.

documents included statements by Secretary of State Antony Blinken and presidential remarks by President Joseph R. Biden Jr. Given their institutional relevance and function, these documents are complementary and thus comparable. They were gathered from the White House Press Corner Archive and the European Council Press Corner. To facilitate the collection, the timeframe of analysis (February 22, 2022, to February 25, 2023) was specified, and documents released closely following published sanction decisions were examined.

4.2. Qualitative Content Analysis following Mayring (2015)

To operationalize the DV and the IVs, a qualitative content analysis, as described by Mayring (2015), is chosen as the preferred method. With this method, the author can analyze a vast number of primary sources, initially employing a qualitative and interpretative approach while capturing latent variables (Mayring & Fenzel, 2014). The procedure follows strict coding rules, thus making it intersubjectively comprehensible. The qualitative content analysis process is two-fold: In a first step, categories are defined, either inductively or theoretically deductively. These categories are matched with corresponding text passages, making the process qualitative and interpretable. In the second step, the researcher must analyze which text passages correspond to each category and determine the number of passages that fall under each category. Hence, a more appropriate term for this method would be a "qualitatively oriented category-guided text analysis" (Mayring & Fenzel, 2014, p. 634). In advance, the analysis units have to be defined: following Mayring's (2015) approach the coding unit is understood as the most minor text component (semantic unit, word, sentence, etc.), the context unit which determines the information for individual coding (e.g. sentence, paragraph, interview response, entire interview, …) and the evaluation unit which defines the portion of material that is compared to a category system (entire material, parts of material, multiple codings, etc.). Following Mayring (2014; 2015), there are different techniques for qualitative content analysis: a) Summary, b) Explication, and c) Structuring. This thesis employs a structuring technique, as categories are derived deductively from the literature (Mayring, 2015; Ulich et al., 1985). Here, one distinguishes between simple category lists (nominal scale level) and ordinally ordered category systems (many-medium-few). The DV in this research is determined by an ordinal category system, as variation in coherence (high, medium, low) is demonstrated. The IVs, on the other hand, follow a nominal scale level, as it is only relevant to determine whether these are present in the material (1) or not (0), so that, following the empirical investigation of the dependent variable and the independent variable, the relationship between these can be determined. The

primary instrument of analysis is the category system developed by the author, which is introduced in the following chapter.

4.3. Coding Scheme

Building on the typology of sanction coherence, the established dimensions now serve as the primary analytical categories for the coding process. A comprehensive overview of the coding scheme, including definitions, anchor examples, and coding notes, is provided in Appendix A. This chapter offers a brief introduction to each category, along with its corresponding indicators. As coherence is an ordinal variable, different degrees of coherence can be analyzed. Each dimension – temporal, substantive, communicative coherence – is scored on an ordinal scale from 0 to 2 to map variation in coherence within the analytical timeframe. Scores can only be integers, with 0 = Low coherence; 1 = Moderate coherence; 2 = High coherence. *Decision Timing* captures the time difference between EU and U.S. publicly announced sanction measures. The indicator is the date of the official announcement of sanction measures, which can be found in the header or the bottom part of the primary documents. A low score is assigned for delays of more than two weeks, while a medium score is assigned for timing differences of three to fourteen days. The highest score is only coded if measures are announced within 48 hours. *Targeted Sectors and employed instruments* assess the degree of overlap in sectors and instruments of EU and U.S. sanctions. First, this category involves checking whether the EU and U.S. measures are directed at the same sectors. It is essential to understand that the same sectors are frequently mentioned in EU and U.S. primary documents. However, this does not necessarily mean that the measures are coherent. Therefore, when a sectoral overlap of three sectors (as defined by the author) is reached, the applied instruments are examined more closely. The question arises as to whether there are references to the specific instruments used (e.g., visa ban, export ban) and whether these are identical or vary in scope. Thus, the indicators include the number of sectors targeted and the type of instruments applied. The lowest score is coded if EU and U.S. measures affect different sectors and apply different instruments. The medium score is coded if there is an overlap in three sectors or fewer, and complementary rather than identical instruments are used. The highest score is only coded if there is an overlap in at least three sectors, and the instruments are the same. This threshold reflects the breadth of sanction policy domains typically covered in each package. *Framing of institutional coordination* examines whether the U.S. and the EU jointly frame or legitimize sanction efforts. The lowest score is coded if there is no sign of coordination framing in primary documents. The modest score is assigned if a vague framing of coordination can be identified, e.g., references to allies

or partners. The highest score is assigned if at least one actor refers to coordination within an established framework, such as the G7. To descriptively assess transatlantic sanction coherence, which comprises temporal, substantive, and communicative coherence, the scores for each case and per dimension are summed, resulting in a total transatlantic coherence index on an ordinal scale, ranging from 0 to 6. Results of the variation in the DV are mapped in Figure 3.

The IVs (economic ties, shared foreign policy objectives, and political shock) are derived from the literature. *Economic ties* refer to explicitly stated economic interests or dependencies between the EU and Russia, or the U.S. and Russia, that might influence their sanction efforts. *Shared foreign policy objectives* capture whether the EU and the U.S. explicitly formulate the same foreign policy objective towards Russia in connection with their respective sanctions decisions. The last independent variable measures a joint perception of a *political shock* event that triggers a coordinated response. All variables are coded in a binary manner, where 0 indicates the absence of the variable, and 1 indicates its presence. To ensure the reliability of the coding process, an intra-coder reliability check was conducted by recoding a subset of the data in the pilot phase (n = 3). After a break, the results were compared to assess consistency and further develop the codebook (Mayring & Fenzel, 2014).

4.4. Configurational Analysis using crisp-set QCA (csQCA)

In a second step, the variation in the dependent variable should be explained by using a qualitative comparative analysis (QCA). QCA is a member of the configurational comparative methods (CCMs), which rely on Boolean algebraic principles, in terms of inferential foundations, mathematical assumptions, and operations (Thiem, 2022). Within this tradition, independent variables are referred to as *conditions*, while the dependent variable is termed the *outcome*. QCA thus focuses on *causes-of-effects*, identifying the configurations that are either necessary or sufficient for the occurrence of a given outcome. A condition is deemed *necessary* for a given outcome when the outcome cannot occur in any case unless the condition is present. Conversely, a condition is regarded as *sufficient* when its presence, on its own, is enough to infer that the outcome in question obtains. QCA offers an asymmetric explanation pattern, where the explanation for the outcome differs from the absence of another outcome, and vice versa (Schneider & Wagemann, 2012). Causal complexity must be distinguished from the logic of causality in regression analysis. Unlike regression analysis, which focuses on the effects of single variables, QCA examines how conditions interact in context-specific constellations (Cronqvist, 2019). This difference reflects the diverging logics of causality: regression isolates marginal effects, whereas QCA treats cases as complex entities formed by intersecting causal

ingredients. By conducting a QCA analysis, the primary implicants should be identified through algorithmic Boolean minimization. Thus, the optimal solution consists of the shortest chain of primary implicants for all cases. Besides the logic of causality and cases as configurations, QCA is linked to set-theoretical considerations. There are three different types of QCA sets: First, crisp sets are dichotomous, distinguishing between set membership and non-set membership. Cases within a csQCA are *differences-in-kind*, allowing for an intra-case analysis about qualitative differences (Wagemann et al., 2020). Second, fuzzy sets (fsQCA) additionally contain a gradual distinction. The variable can have a value between 0 and 1, allowing for more precise information about gradual differences (*differences-in-degree)*. Finally, multi-value sets (mvQCA) enable the examination of multinomial categories. Which type to choose highly depends on the research question and theoretical assumptions about the underlying concept (Wagemann et al., 2020). In this study, a csQCA is employed. Compared to mvQCA, a crisp QCA is more interpretable and robust for this small-N study, thereby reducing complexity (Marx et al., 2013). Furthermore, conditions were already coded in a binary manner, matching crisp-set prerequisites. Although the outcome was coded categorically, three separate csQCA analyses were conducted for each outcome, allowing for this method to be applied here. An fsQCA would neither be theoretically justifiable nor empirically reliable, and would merely create false precision. Especially with a small number of cases (n = 9), a crisp set model stabilizes the research logic because it respects the defined qualitative categories and does not force any fine, data-less intermediate steps. Additionally, QCA as a whole is well-suited for y-centric designs, where the central aim is to explain why a particular outcome occurs. Because the cases under study share a common domain, the method's set-theoretical logic and reliance on substantive case knowledge further strengthen its appropriateness (Wagemann et al., 2020). Regardless of whether the design is crisp, fuzzy, or multi-value, QCA adheres to a standard protocol, as illustrated in Figure 2 below.

Figure 2

Standard QCA Protocol

First, the raw data must be calibrated into the corresponding set. Which set to choose depends on the research interest, the data structure, and the scaling of available data (Thiem, 2022).
Before constructing the truth table, it is good practice to analyze *necessary* conditions (Mello, 2021). If there were a necessary condition, this would aid in the construction of the truth table, minimization, and the interpretation of the results. The measure of fit to check for necessity is *consistency*. Following Schneider and Wagemann 2012, p.143, necessary conditions must pass the threshold of 0.90 set-theoretic consistency to count as necessary. The smaller the number of cases involved, the higher the threshold should be (Mello, 2021). Once this threshold is passed, *coverage* and *relevance of necessity (RoN)* are added as additional metrics for necessity. Mello (2021) defines the threshold of 0.50 for coverage and relevance to ensure the conditions are not trivial.
Next, sufficient conditions must be analyzed. That's where the truth table, "the core of QCA" (Mello, 2021, p. 200), comes into play, as it contains all logically possible combinations of conditions; thus, it is an analysis grounded in combinatorial logic. The rows represent a combination of conditions (a *configuration*) that can be determined using the formula 2^k, where k represents the number of included conditions (Mello, 2021). Each row of the truth table represents a statement of sufficiency; however, there can also be contradictory rows (Mello, 2021). Literature suggests the following thresholds for descriptive truth table analysis: *Consistency* threshold of 0.75, a *proportional reduction in inconsistency (PRI)* threshold of ≥ 0.60, and a *frequency* threshold of 1 for small-N studies (Wagemann et al., 2020).
Lastly, the minimization process itself is a two-step procedure run by a QCA software using the Consistency Cubes algorithm. It yields three solution types: the *conservative*, the *parsimonious*, and the *intermediate solution*. Their relationship can be described as follows: "The parsimonious solution is the *superset* of the other solutions, and the conservative solution is a *subset* of the intermediate and parsimonious solutions" (Mello, 2021, p. 221). They differ in their understanding of *logical remainders*: The conservative solution only considers empirical rows and overlooks the empty ones. All logical remainders are treated as false. The parsimonious solution, on the other hand, includes all rows, even those with logical remainders. The intermediate solution is situated between the other two solutions, encompassing all logical remainders that are considered sensible (Mello, 2021). Despite their differences, literature suggests testing all three solutions, comparing them, and presenting the results directly in the thesis or the appendix (Mello, 2021).

5. Analysis: Assessing the Coherence of EU and U.S. Sanctions against Russia

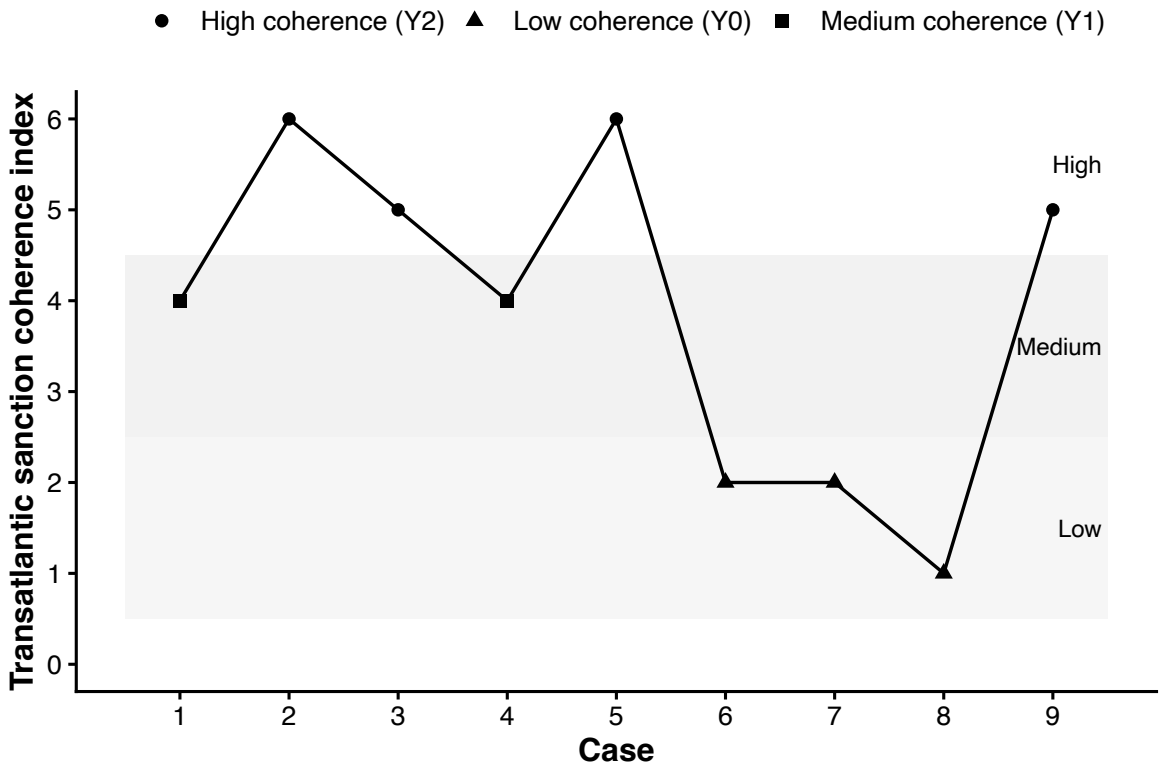
This chapter introduces the empirical findings of the thesis. In the first two sections, the findings of the qualitative content analysis are presented (Mayring, 2015): the variation in outcome and the presence or absence of the conditions per case. In section 5.3, the results of the csQCA are presented.

5.1. Determining Variation in Sanction Coherence

This section summarizes the key findings of the empirical analysis on transatlantic sanction coherence. The complete empirical analysis is presented in Appendices C and D. Following the scaling logic of the coding scheme, Figure 3 displays the results[3].

Figure 3

Variation in Transatlantic Sanction Coherence



Overall, the coherence of transatlantic sanctions varied over time. Starting with medium coherence in case 1, two episodes with high coherence followed in cases 2 and 3, before another decline to medium coherence in case 4. An episode of high coherence can be observed in case

[3] The graphic is already linked to set-theoretic calibration which allows for clusters into high, medium, or low coherence. Calibration is further explained in Chapter 5.3.

5, before coherence dropped for cases 6 and 7, reaching its lowest point in case 8, before increasing again in the last case.

5.2. Identifying Explanatory Conditions

The conditions were coded on a dichotomous scale, where 0 indicated absence and 1 indicated presence. Table 1 below illustrates the presence or absence of each variable per case. In seven out of nine cases, it was referred to economic ties (X1). The same applies to shared foreign policy objectives (X2), which overlapped in seven out of nine cases. Political shock (X3) could only be identified in three out of nine cases. Coding examples are provided in Appendix B.

Table 1

Absence and Presence of Conditions

Case	Economic Ties (X_1)	Shared Foreign Policy Objectives (X_2)	Political Shock (X_3)
1	1	0	0
2	1	1	1
3	0	1	1
4	1	1	0
5	1	1	1
6	1	1	0
7	1	1	0
8	0	0	0
9	1	1	0

5.3. Crisp-set QCA

This section presents the empirical results of the csQCA. Thereby, it follows the standard steps of QCA analysis: the calibration is explained, followed by the necessary conditions and truth tables, before presenting the Boolean algorithmic minimization with its different solution terms (Mattke et al., 2022; Mello, 2023). The R Code for the analysis is provided in Appendix E.

All conditions were already coded in a binary manner, allowing for a crisp-set setup with $X1 \in \{0,1\}$, $X2 \in \{0,1\}$, $X3 \in \{0,1\}$, where 0 indicates the absence and 1 indicates the presence of the condition. The outcome, on the other hand, is a cumulative score ranging from 0 to 6 on the *Transatlantic Sanction Coherence Index*, where $S_i \in \{0,1,2,3,4,5,6\}$. To facilitate algorithmic

processes, the six-point scale was transformed into an ordinal scale with three qualitative variable values, Y ∈ {0, 1, 2}, so that:

$$Y\ (i)\begin{cases} 0\ if\ S(i) \in \{0,1,2\} \\ 1\ if\ S(i) \in \{3,4\} \\ 2\ if\ S(i) \in \{5,6\} \end{cases}$$

Since csQCA requires dichotomous outcomes, three disjoint outcome sets are defined:

Low coherence

$$Y_i^{(0)} = \begin{cases} 1 & \text{if } Y_i = 0 \\ 0 & \text{otherwise} \end{cases}$$

Medium coherence

$$Y_i^{(1)} = \begin{cases} 1 & \text{if } Y_i = 1 \\ 0 & \text{otherwise} \end{cases}$$

High coherence

$$Y_i^{(2)} = \begin{cases} 1 & \text{if } Y_i = 2 \\ 0 & \text{otherwise} \end{cases}$$

Each level of coherence is analyzed in a separate csQCA model, which uses the corresponding binary outcome (Y^(0), Y^(1), Y^(2)) as the dependent variable, while the remaining cases are coded as non-members (0). This approach follows well-established set-theoretic practice in dealing with ordinal outcomes in csQCA.

5.3.1. Necessity Analysis

First, it is essential to assess the relationship between each condition and the outcome. *Necessary* conditions are present when an outcome cannot occur in any case unless the condition is present. As a tool of necessity, *consistency* with its threshold of at least 0.90 is used (Mattke et al., n.d.; Schneider & Wagemann, 2012). High *coverage* must also be present, as it indicates the degree to which the conditions relate to the outcome. The coverage and relevance threshold should be 0.50 or higher.

Table 2

Analysis of Necessary Conditions for Low Coherence

	Presence of Conditions			Absence of Conditions		
Condition	Consistency	Coverage	Relevance	Consistency	Coverage	Relevance
X1	0.67	0.29	0.29	0.83	0.71	0.50
X2	0.67	0.29	0.29	0.83	0.71	0.50
X3	0.00	0.00	0.67	0.50	1.00	1.00
~X1	0.33	0.50	0.86	0.17	0.50	0.88
~X2	0.33	0.50	0.86	0.17	0.50	0.88
~X3	**1.00**	**0.50**	**0.50**	0.50	0.50	0.50

As seen in Table 2 *~X3* is a necessary condition for low coherence, as it passes the consistency (1.00), coverage (0.50), and relevance (0.50) thresholds. Thus, low sanctions coherence only occurs in the absence of a political shock. There is no necessary condition for the non-outcome.

Table 3

Analysis of Necessary Conditions for Medium Coherence

	Presence of Conditions			Absence of Conditions		
Condition	Consistency	Coverage	Relevance	Consistency	Coverage	Relevance
X1	**1.00**	0.29	0.29	0.71	0.71	0.50
X2	0.50	0.14	0.25	0.86	0.86	0.67
X3	0.00	0.00	0.67	0.43	1.00	1.00
~X1	0.00	0.00	0.78	0.29	1.00	1.00
~X2	0.50	0.50	0.88	0.14	0.50	0.88
~X3	**1.00**	0.33	0.43	0.57	0.67	0.60

For medium coherence (both the outcome and the non-outcome), no necessary conditions can be identified, as demonstrated in Table 3. Although the consistency threshold is met for X1 and *~X3*, coverage and relevance fall below the thresholds.

Table 4

Analysis of Necessary Conditions for High Coherence

	Presence of Conditions			Absence of Conditions		
Condition	Consistency	Coverage	Relevance	Consistency	Coverage	Relevance
X1	0.75	0.43	0.33	0.80	0.57	0.40
X2	1.00	0.57	0.40	0.60	0.43	0.33
X3	0.75	1.00	1.00	0.00	0.00	0.67
~X1	0.25	0.50	0.88	0.20	0.50	0.88
~X2	0.00	0.00	0.78	0.40	1.00	1.00
~X3	0.25	0.17	0.38	**1.00**	**0.83**	**0.75**

Table 4 yields the following: *~X3* is a necessary condition for the non-outcome of high coherence, meeting all relevant thresholds. If there is no high level of coherence, then there is always no political shock.

In sum, only the absence of political shock (*~X3*) emerges as a necessary condition: It is necessary for the occurrence of low coherence and the non-occurrence of high coherence. This leads to the assumption that configurations of conditions better explain the occurrence of low, medium, and high coherence than the occurrence of a single condition. Following the necessity analysis, a set-theoretic analysis is employed, constructing truth tables for each outcome before minimizing through Boolean algebra.

5.3.2. Sufficiency Analysis

This section aims to reveal configurations that causally lead to each outcome of interest. The analysis separately addresses the three possible outcomes, starting with low coherence, then medium coherence, and finally high coherence. QCA employs a truth table to display all theoretically possible combinations of conditions, thus sufficient configurations, before minimizing them into solution terms. Logical remainders are also visible, which is essential for the solution in terms of the algorithmic minimization. In the tables below, '1' indicates the presence of the outcome, while '0' indicates its absence.

Table 5

Truth Table for Low Coherence

Condition			Outcome					
X1	X2	X3	Y0	Row	n	Consistency	PRI	Cases
0	**0**	**0**	**1**	1	1	**1.00**	**1.00**	8
1	1	0	0	7	4	0.50	0.50	4,6,7,9
1	1	1	0	8	2	0.00	0.00	2,5
0	1	1	0	4	1	0.00	0.00	3
1	0	0	0	5	1	0.00	0.00	1
0	0	1	?	2	0	-	-	
0	1	0	?	3	0	-	-	
1	0	1	?	6	0	-	-	

Note. X1 = Economic Ties, X2 = Shared Foreign Policy Objectives, X3 = Political Shock

With three conditions, each truth table has $2^3 = 8$ rows. Following Table 5, five empirically observed configurations either explain the presence or absence of low coherence. Three logical remainder rows are visible. The configuration of row 1 is sufficient to explain low coherence, as all thresholds are met (consistency = 1.00; PRI = 1.00). Case 8 serves as the empirical anchor.

Table 6

Truth Table for Medium Coherence

Condition			Outcome					
X1	X2	X3	Y1	Row	n	Consistency	PRI	Cases
1	**0**	**0**	**1**	5	1	**1.00**	**1.00**	1
1	1	0	0	7	4	0.25	0.25	4,6,7,9
1	1	1	0	8	2	0.00	0.00	2,5
0	0	0	0	1	1	0.00	0.00	8
0	1	1	0	4	1	0.00	0.00	3
0	0	1	?	2	0	-	-	
0	1	0	?	3	0	-	-	
1	0	1	?	6	0	-	-	

Note. X1 = Economic Ties, X2 = Shared Foreign Policy Objectives, X3 = Political Shock

Table 6 for medium coherence contains five empirically observed configurations of conditions and three logical remainders. Only one sufficient configuration (row 5) yields the outcome of interest, which includes case 1 (consistency = 1.00; PRI = 1.00).

Table 7

Truth Table for High Coherence

Condition			Outcome					
X1	X2	X3	Y2	Row	n	Consistency	PRI	Cases
1	**1**	**1**	1	8	2	**1.00**	**1.00**	2,5
0	**1**	**1**	1	4	1	**1.00**	**1.00**	3
1	1	0	0	7	4	0.25	0.25	4,6,7,9
0	0	0	0	1	1	0.00	0.00	8
1	0	0	0	5	1	0.00	0.00	1
0	0	1	?	2	0	-	-	
0	1	0	?	3	0	-	-	
1	0	1	?	6	0	-	-	

Note. X1 = Economic Ties, X2 = Shared Foreign Policy Objectives, X3 = Political Shock

Lastly, Table 7 for high coherence also contains five empirically observed configurations, with two of these configurations being sufficient for the outcome of interest. Namely, the rows 8 and

4, exceed all thresholds (consistency = 1.0; PRI = 1.0). Three configurations constitute logical remainders.

Next, for each outcome, the conservative, the parsimonious, and the intermediate solutions were generated in R. Based on the solution terms, this study identified three distinct configurations: a) low coherence, b) medium coherence, and c) high coherence. For interpretation, the intermediate solution is chosen, as it encompasses all logical remainders that are considered "plausible counterfactuals" (Mello, 2021, p. 136), an essential step for small-N case designs.

Table 8

Solution Terms for Low Coherence

Solution	Path nr.	Causal Path	Case	Consistency	PRI	Raw cov	Ucov
Conservative	1.1	~X1*~X2*~X3 → Y0	8	1.00	1.00	0.33	-
Parsimonious	1.2	~X1*~X2 → Y0	8	1.00	1.00	0.33	0.00
	1.3	~X1*~X3 → Y0	8	1.00	1.00	0.33	0.00
Intermediate	1.4	~X1*~X2*~X3 → Y0	8	1.00	1.00	0.33	-
Solution consistency	1.00						
Solution coverage	0.33						
Solution PRI	1.00						
Model (Total)	M1						

Table 8 shows that solution terms 1.1 and 1.4 are identical, with the parsimonious solutions (1.2 and 1.3) being a *superset* of the conservative and intermediate solutions. Based on the intermediate solution term, this study identified one distinct path for low coherence:

$$\sim X1*\sim X2*\sim X3 \rightarrow \mathbf{Y0}$$

This path highlights the absence of all three conditions, resulting in low coherence. The solution has a consistency of 1.00 and a coverage of 0.33, which can be interpreted as indicating that the path yields highly consistent results for 33% of the set-membership values for the outcome.

Table 9

Solution Terms for Medium Coherence

Solution	Path nr.	Causal Path	Case	Consistency	PRI	Raw cov	Ucov
Conservative	2.1	X1*~X2 → Y1	1	1.00	1.00	0.50	-
Parsimonious	2.2	X1*~X2 → Y1	1	1.00	1.00	0.50	-
Intermediate	2.3	X1*~X2*~X3 → Y1	1	1.00	1.00	0.50	-
Solution consistency	1.00						
Solution coverage	0.50						
Solution PRI	1.00						
Model (Total)	M1						

Table 9 displays path 2.1, which shows the conservative (2.1) and parsimonious (2.2) solutions, which are the same; the intermediate solution (2.3) is more specific due to the restricted assumptions about the logical reminders; however, the overall fit remains stable across all solutions, and this study identified one distinct path for medium coherence following the intermediate solution:

X1*~*X2*~*X3* → Y1

Path 2.3 combines the presence of economic ties (X1) and the absence of shared foreign policy objectives (X2) and political shock (X3). The consistency is 1.00, encompassing 50% of all cases where medium coherence was observed.

Table 10

Solution Terms for High Coherence

Solution	Path nr.	Causal Path	Case	Consistency	PRI	Raw cov	Ucov
Conservative	3.1	X3 → Y2	3,2,5	1.00	1.00	0.75	-
Parsimonious	3.2	X3 → Y2	3,2,5	1.00	1.00	0.75	-
Intermediate	3.3	X2*X3 → Y2	3,2,5	1.00	1.00	0.75	-
Solution consistency	1.00						
Solution coverage	0.75						
Solution PRI	1.00						
Model (Total)	M1						

As seen in Table 10, both the conservative (3.1) and parsimonious solution (3.2) reveal political shock as the sole sufficient condition. The intermediate solution adds shared foreign policy objectives as a conjunctural requirement (3.3). Based on the intermediate solution term, this study identified one distinct path for high coherence:

X2*X3 → Y2

This path highlights the dominant role of shared foreign policy objectives and political shock in explaining high sanctions coherence. The consistency is 1.00, encompassing 75% of all cases where high coherence was observed.

5.3.3. Robustness Check

To ensure robustness in the results, the robustness test protocol for applied QCA, as outlined by Oana & Schneider (2024), was conducted in R. The results are displayed in the tables below, along with a short explanation for each table.

Table 11

Sensitivity Ranges for High Transatlantic Sanction Coherence

Parameter	***IS* values**	**Robust range (tested)**
incl.cut	1.00	0.90 – 1.00
n.cut	1	1 - 2

Note. IS = initial solution; incl.cut = consistency threshold for sufficient conditions; n.cut = minimum number of cases per truth table row (frequency threshold)

The sensitivity ranges in Table 11 reveal that Y2 is robust within the consistency threshold of 0.90-1.00, as well as within its frequency threshold of 1-2. Following Oana & Schneider (2024), the solution for high coherence remains robust, even when both parameters of analysis are modified.

Table 12

Robustness Results for High Coherence

Component	Value
Case-oriented parameters	
Robust core (RC_Y2)	X2*X3
Consistency (RC)	1.00
Coverage (RC)	0.75
PRI (RC)	1.00
Fit-oriented parameters	
RF_cons	1
RF_cov	1
RF_SC_minTS	1
RF_SC_maxTS	1
Initial solution (IS_Y2)	X2*X3
Model-oriented parameter	
Hardest test (single_Y2)	Model: X3; RCC_Rank = 1; SC = 1

Note. RC = robust core; RF_* are robustness fit parameters; RCC (robustness case classification) is used to identify the hardest test (RCC_Rank in the row 'Hardest test'), but detailed RCC case metrics are not reported due to software limitations.

The fit-oriented tests examine the subset relations between the initial solution and *shaky* (minTS) and *possible* (maxTS) cases, to assess potential violations of robustness assumptions. First, consistency and coverage thresholds are modified. The robustness of the core is captured by the first two variables (RF_cons, RF_cov) in how well it withstands these changes compared to the IS (Oana & Schneider, 2024). The degree of overlap between the IS and the minTS=maxTS is captured by the third and fourth parameters (RF_SC_minTS; RF_SC_maxTS). The closer all four parameters are to 1, the higher the robustness. As displayed in Table 12, all fit-oriented parameters indicate high robustness (Oana & Schneider, 2024).

Case-oriented parameters are computed to identify robustness-relevant cases and determine the robustness case rank (RCC_Rank), which specifies the location of the relationship between IS and minTS = maxTS (Oana & Schneider, 2024). Table 12 displays a robust configuration (X2*X3), with perfect sufficiency (RC_{cons} = 1.00), where the robust core explains 75% (RC_{cov} = 0.75) of all cases with high coherence. There is no relevant overlap with the non-outcome (PRI = 1.00).

For medium and low coherence, no robust solution could be determined. The problem occurred when running the R code for the stricter frequency threshold from n.cut = 1 to n.cut = 2. For low and medium coherence, there are no configurations that are explained by two cases and are consistent enough in relation to the outcome. Thus, Y0 and Y1 are not frequency robust. Given the lack of support in the data, no further robustness checks were conducted. The interpretation of the configurational paths must be made with caution.

6. Discussion

This section discusses the empirical findings and situates them within their broader context. Furthermore, the chapter presents three individual explanations for each outcome level of the QCA analysis, linking them back to the hypotheses formulated in Chapter 3.4. Lastly, the discussion derives implications for the future of transatlantic sanctioning.

To answer the first research question (*How coherent are the EU and U.S. sanctions against Russia between February 22, 2022, and February 25, 2023?*), the empirical findings yield the following answers: coherence always exists and is never zero. Yet, after primary document analysis, variation is visible, characterizing phases of low, medium, and high coherence. A distinct pattern is evident in the data, as shown in Figure 3 of this thesis. High and medium coherence are visible in the first half of 2022, while in the second half of the year, the coherence briefly dips to low coherence before reuniting to high coherence on the 'first anniversary' of the invasion. But what explains variation in transatlantic sanction coherence? To answer the second research question, csQCA results must be interpreted. As only one configurational path is robust (Y2), interpretations for Y0 and Y1 are made with caution, while the focus is on contextualizing the robust outcome of high transatlantic sanctions coherence. Low coherence only emerges when all three conditions – economic ties, shared foreign policy objectives, and political shock – are absent, characterized by the configurational path *~X1*~X2*~X3*→ Y0. It results from a situation in which no structural or situational incentives for coordination exist. This combination of factors generates a setting in which both actors seem to act independently. The EU sanctioning decisions in December 2022 and the U.S. decisions in November 2022 serve as the empirical anchor to illustrate this logic. In that case, U.S./EU economic ties with Russia did not emerge as a structural problem. Neither actor signaled publicly shared foreign policy objectives, and no shock moment created an incentive for rapid alignment. Case 8, therefore, exemplifies this configurational path perfectly. This study initially expected the sufficient path X1*~X2*~X3* to account for low coherence. The empirical pattern, on the other

hand, suggests that low coherence can also emerge in situations where economic ties do not meaningfully constrain either party. It suggests that low coherence may be driven by factors outside the scope of this study, as all theoretically established factors in this thesis are absent. This offers valuable insights, and further research should investigate the status of low coherence to identify conditions that, in their presence, contribute to the outcome. Literature suggests evaluating various factors, among them structural, strategic, economic, and domestic ones (Riddervold & Newsome, 2022). Specifically, the structural differences outlined in Chapter 2 of this thesis may account for this outcome and should be considered in further research. Given the lack of frequency robustness, this interpretation should be understood as a tentative mechanism rather than a general pattern.

In this small N-setting, medium coherence appears to emerge in configurations where economic ties are present, but neither shared policy objectives nor perceptions of political shocks are present, indicated through the configurational path: X1*~*X2*~*X3* → Y1, challenging the hypothesized configurational path X1*(X2+X3) → Y1. The empirical analysis has shown that the presence of economic ties resulted in a medium level of coherence, indicating that economic dependence does not uniformly depress coherence but can generate partial coherence when other drivers are absent. When considering economic ties, the sanction literature has primarily focused on the target's dependency on the sanctioning state (Escribà-Folch & Wright, 2010; Peksen, 2019; Morgan & Schwebach, 1997; Tsouloufas & Rochat, 2023). By shifting the focus to the sender dyad, the configurational path can logically be explained. In the transatlantic context, the dyadic sender constellation is characterized by asymmetric economic ties between the EU and Russia on the one hand, and the U.S. and Russia on the other hand. In particular, Europe's energy dependence on Russia has been shown to create diverging incentives and lower the likelihood of joint measures (Escribà-Folch & Wright, 2010; Tsouloufas & Rochat, 2023). This is not only demonstrated by the content of the sanction packages, as analyzed in the first part of this thesis, but also by examining the formulation process within the EU as a whole (Vahe, 2021; Luhmann, 2022). This explains why high coherence in such configurations is unlikely, because the two actors face different strategic and economic constraints. Nevertheless, even though the EU is more reliant on Russian resources, it is precisely this dependency that creates a minimum level of coherence, not to coordinate effectively, but to limit its own damage. As a result, economic ties appear to compel the EU to align, as it must design sanctions in a manner that minimizes economic damage, reduces uncertainty, and limits potential spill-over effects. To do this, it needs signals, timing, guidance, or coordination with its biggest sanctions ally – the U.S. Hence, in the absence of shared objectives and political shock, economic ties

lower the likelihood of highly coherent action while still generating enough pressure for some coherent action. Taken with caution, in this specific case, economic ties serve as a floor condition, raising the outcome from low to medium, thus stabilizing cooperation enough to produce medium coherence when foreign policy objectives and political shock are absent. The empirical case is the sanctioning decisions on February 22, 2022, which reveal moderate coherence. While some economic ties created an incentive to coordinate minimally, the lack of joint foreign policy objectives and political shock led to an attenuated outcome.

Lastly, high coherence is consistently associated with the presence of a political shock, particularly when such a shock coincides with shared foreign policy objectives. In the robust intermediate solution, this is captured by the configurational path X2*X3 → Y2. This aligns with theoretical assumptions from the sanction literature. Episodes of high political salience tend to trigger rapid and more aligned policy responses because governments, influenced internally and externally, are expected to respond publicly to the target's behavior (Riddervold & Newsome, 2022). Sanctions function as such a signaling instrument (Lindsay, 1986). Shared foreign policy objectives further strengthen this dynamic. As established in foreign policy research, goal alignment serves coherent foreign policy action (Hill, 1993; Portela, 2014; Raube & Rubio, 2022). When both actors pursue similar foreign policy objectives, coordination and complementarity become more likely (de Galbert, 2016; Fahey, 2023; Wei, 2025). In the theoretically guided intermediate solution, no single condition is treated as sufficient to explain high levels of coherence; rather, their interplay is. The empirical pattern clearly illustrates the mechanisms. The invasion on February 24, 2022, the further escalation on February 28, 2022, and the Bucha atrocities in April 2022 each triggered acute shock moments. In all three sanctioning rounds, the transatlantic partners articulated shared objectives, acted simultaneously, and adopted overlapping measures, underlining the configurational logic behind the high coherence outcome. Taken together, these findings provide indirect support for the theoretically embedded sufficient path ~*X1**X2*X3 → Y2, insofar as the empirical solution X2*X3 → Y2 is consistent with the expectation that high coherence is facilitated when structural economic constraints are limited.

The findings have further implications for the governance of transatlantic sanctions. The primary focus for policymakers should be to understand when, how, and why high coherence is achieved, because in the long run, high transatlantic sanctions coherence should be the goal and is closely linked to the effectiveness of sanctions. At the same time, asymmetric pressure in coherent sanctioning cases and complicated transatlantic bonds can be understood. The empirical results yield important insights into mechanisms underlying the outcome of interest.

On the one hand, high coherence is context-dependent, not structural. As clearly demonstrated by the occurrence of political shock as a condition, transatlantic sanctions coherence can be interpreted as determined by shock moments, making it an impermanent state. Without any drastic shock, there does not seem to be high coherence. Nevertheless, as established through empirical analysis, in substantive terms, political shock alone does not fully lead to high coherence. Without shared foreign policy objectives, the initial ground for coordination lacks direction. Therefore, it is precisely the interaction between these two conditions that is essential to understand. What makes the Russian sanctioning case unique compared to other sanctioning cases is that the interplay of shared foreign policy objectives and political shock accounts for its high coherence. In past EU-U.S. sanctioning cases, it was economic ties that explained the emergence of coherence. For example, in 2007, both actors jointly sanctioned the Iranian regime for its fast-growing nuclear program. Coherence primarily emerged because the U.S. successfully leveraged its dominant position and the threat of extraterritorial sanctions to induce the EU to adopt American measures, rupturing the transatlantic bond (Falke, 2000; Jianwei, 2019; Lohmann, 2016). This also implies that high levels of transatlantic sanction coherence are not necessarily the result of genuine consensus, but can be produced through asymmetric leverage and extraterritorial measures that strain the relationship with European allies.

Besides aiming for high coherence, medium coherence must also be put into context. While acknowledging the non-robustness of the findings, economic ties seem to create a basic obligation to coordinate. Once one sender of the dyad is more reliant on the target, the other sender can act more independently. In line with the literature, the U.S. mostly finds itself in a hegemonic position to impose sanctions. On the one hand, this unipolar structure creates an incentive for sanction coherence, as the hegemon (U.S.) can convince its allies (EU) to closely collaborate on sanction measures, thus being a "catalyst for a unified response by the EU and the U.S." (Falke, 2000, p. 145). On the other hand, the U.S. hegemonic position can be problematic and has been proven problematic in prior sanctioning cases: exploiting its power, the U.S. introduced secondary sanctions to compel its allies to agree on a sanction policy, as seen in the Iranian sanctioning case (de Galbert, 2016; Fahey, 2023; Immenkamp, 2024; Nephew, 2019). Another illustrative example is the annexation of Crimea in 2014. The U.S. and the EU formally aligned in sanctioning efforts, but they avoided the sensitive domain of Russia-Europe energy cooperation. Without referring to all the details, the economic ties between the sender dyad vis-à-vis Russia created a dispute over the EU's energy policy, with accusations that the U.S. would hinder the construction of Nord Stream 2 to boost its own exports of LNG. Within this sanctioning case, Austria and Germany issued a public statement,

saying that they “cannot accept… the threat of illegal extraterritorial sanctions against European companies that participate in the development of European energy supply” (Jianwei, 2019, p. 178). Commission President Jean-Claude Junker added: “America First cannot mean that Europe's interests come last" (Jianwei, 2019, p. 178). This dispute arises from different economic ties, which lead to moderate coherence. Coordination takes place even without shocks, but it remains selective, tactical, and cautious.

Lastly, situations of low coherence must be evaluated to avoid this status in the near future. The empirical results demonstrate that transatlantic sanctions coherence remains fragile. Without any shock moments, shared objectives, or economic pressure points, coherence is low. Additional factors must be considered to fully comprehend this phenomenon.

The future of transatlantic sanctioning should be determined by high coherence to enable effective sanction regimes against targeted entities. For both actors, there is a solid foundation for coherence, characterized by shared values and norms. Nevertheless, some obstacles remain. While shock moments can mainly not be foreseen or influenced, shared foreign policy objectives can be aligned and adjusted. Shared objectives are essential, but they often emerge ex post and depend on various factors. Although this thesis does not address domestic variables as part of its analysis, it is essential to consider them within the broader context of transatlantic relations, because shifting domestic political landscapes within the EU and the U.S. have further implications for foreign policy decisions (Harell, 2017). Looking beyond the empirical timeframe of this thesis, already with the first election of Donald Trump in 2017, scholars predicted a weakening of the transatlantic relationship following Trump’s words: “the very basis of the relationship with Europe no longer fits with U.S. values, needs, and interests” (Anderson, 2018, p.27, cited after Riddervold & Newsome, 2022, p. 219). After the election of Biden at that time, the European Commission stressed the fact of aligning shared objectives to enhance cooperation “while avoiding unintended consequences for European and U.S. economic interests and the unilateral use of extraterritorial sanctions” (Fahey, 2023, p. 8). With the current Trump administration, domestic dynamics are changing more drastically, potentially causing uncontrolled spillover effects from domestic politics into the international arena. In the economic and trade areas, for example, Trump has already threatened with tariffs against the EU, raising bilateral tensions. Trump’s America First policy and the U.S. withdrawal from international organizations contradict Europe’s approach to multilateralism, which will naturally harm transatlantic sanction governance in the future (Jianwei, 2019). Hence, the first policy recommendation would involve strengthening EU-U.S. dialogue to address diverging views and economic tensions, thereby avoiding further conflict. Specifically, this entails

institutionalizing alignment with shared foreign policy objectives (X2), enhancing the management of political shocks (X3) through expedited consultation, and addressing economic interdependence (X1). In that sense, institutional capabilities and differences in sanctioning must be considered, as already alluded to at the beginning of this thesis. Thus, another recommendation would be to respect institutional differences while improving coordination mechanisms of transatlantic sanctions.

7. Conclusion

This study aimed to assess the coherence of transatlantic sanctions against Russia between February 22, 2022, and February 25, 2023, and to explain variation in coherence. The results of the empirical analysis yield the following: Transatlantic sanction coherence is not a permanent state, thus demonstrating variation. By employing a crisp-set qualitative comparative analysis (csQCA), this study identified three configurational paths, each accounting for one distinct outcome of transatlantic sanctions coherence (low/medium/high), with only one robust path leading to high coherence. In this small-N setting, low coherence appears to be an outcome driven by the absence of certain conditions, including economic ties, shared foreign policy objectives, and political shock. In analyzing medium coherence, economic ties seem to act as a stabilizing yet constraining factor, while political shocks and shared foreign policy objectives act as triggers for high coherence. This study makes significant contributions to the sanction literature in several ways. First, embedded in the literature, a theoretical framework was established for understanding how the coherence of sanctions can be understood. Next, a coding scheme was developed to measure coherence qualitatively, determining varying degrees of sanction coherence. Via csQCA, three distinct configurational paths were identified, each explaining a particular outcome of coherence, although only the path to high coherence withstands all robustness checks. Nevertheless, the findings contribute to filling the research gap on sender cooperation in sanctioning cases. Further insights were provided into a case of utmost importance for European security. Understanding sanctions against Russia helps strengthen European strategic autonomy in the security and defense domains, as well as transatlantic coordination mechanisms. The comparative angle of this study enables consideration of the broader transatlantic sanctioning context.

Despite its contributions, this study faces several limitations stemming from the methodological approach employed in this thesis. First, to determine variation in sanction coherence, primary documents were analyzed by using a qualitative content analysis (Mayring, 2015). While qualitative coding captures structural similarities between sanction efforts, the quantitative

depth (e.g., the number of entities targeted) was not systematically measurable from primary documents. Furthermore, as primary documents describe sanctions qualitatively rather than numerically, e.g., by solely referring to major banks, qualitative evidence determined the coding. Given the absence of established coherence measures in sanction research, thresholds were defined based on theoretical expectations and empirical patterns in sanction packages. The cutoffs, therefore, represent theoretically informed but author-defined thresholds. Intracoder reliability was ensured by pilot coding a small number of primary sources twice (n = 3); however, intercoder reliability could not be assured. Next, the jumpy variation in the graphic of the dependent variable suggests that minor measurement differences have a significant visual impact. This stems from the ordinal scaling done via Mayring's (2015) method. Graphical interpretations should be made with caution. They primarily serve as a visual anchor for qualitative data. Another limitation concerns the use of the QCA method. The assumptions made in this thesis are linked to the specific case of the Russian invasion of Ukraine. Within QCA research, all statements are interpreted within their research context, but this approach poses some difficulties when it comes to generalizability beyond the case (Cronqvist, 2019). Thus, statements regarding the generalizability of the empirical findings should be made with caution. Furthermore, following the robustness check, only the configurational solution leading to high coherence withstands all tests, while Y1 and Y0 are not frequency-robust due to the small-N study design.

These limitations provide an opportunity for further research. To address the problem of generalizability and robustness, future scholars could employ a medium- or large-N study following a mixed-methods approach. Most sanction research relies on quantitative datasets as raw data, whereas this study employed qualitative data. To justify the use of qualitative data gathering and counter all arguments made against qualitative approaches, future research could employ the established coding manual to assess its validity in the Russia-Ukraine context. Intra and intercoder reliability should be ensured. Furthermore, following Vahe's (2021) approach, when assessing primary documents, sanction lists, appendices, and additional primary sources should be considered, as entity-level listings (e.g., EU Official Journal Annexes, OFAC SDN data) can provide a more granular measure of scope within sectors. Given the scope and character count of this thesis, this could not be done. In addition to methodological considerations, the dynamics between multiple senders should be more thoroughly analyzed to close the remaining gaps in the literature. This could enhance sanction coherence and harmonize sanctioning efforts against Russia. Considering the multilateral sanctions framework, additional factors for coherence should be identified to extend beyond the Russian case.

8. References

Primary Sources

EU Primary Sources

Corrigendum to Council Decision (CFSP) 2022/429 of 15 March 2022 amending Decision 2014/145/CFSP concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine. *Official Journal of the European Union,* L 105 (2022). http://data.europa.eu/eli/dec/2022/429/corrigendum/2022-04-04/oj

Council Decision (CFSP) 2022/264 of 23 February 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union,* L 042I (2022). http://data.europa.eu/eli/dec/2022/264/oj

Council Decision (CFSP) 2022/327 of 25 February 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union,* L 048 (2022). http://data.europa.eu/eli/dec/2022/327/oj

Council Decision (CFSP) 2022/335 of 28 February 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union,* L 057 (2022). http://data.europa.eu/eli/dec/2022/335/oj

Council Decision (CFSP) 2022/429 of 15 March 2022 amending Decision 2014/145/CFSP concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine, *Official Journal of the European Union*, L 087I (2022). http://data.europa.eu/eli/dec/2022/429/oj

Council Decision (CFSP) 2022/578 of 8 April 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 111 (2022). http://data.europa.eu/eli/dec/2022/578/oj

Council Decision (CFSP) 2022/884 of 3 June 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 153 (2022). http://data.europa.eu/eli/dec/2022/884/oj

Council Decision (CFSP) 2022/1271 of 21 July 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 193 (2022). http://data.europa.eu/eli/dec/2022/1271/oj

Council Decision (CFSP) 2022/1907 of 6 October 2022 amending Decision 2014/145/CFSP concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine, *Official Journal of the European Union*, L 259I (2022). http://data.europa.eu/eli/dec/2022/1907/oj

Council Decision (CFSP) 2022/2478 of 16 December 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in

Ukraine, *Official Journal of the European Union*, L 322I (2022). http://data.europa.eu/eli/dec/2022/2478/oj

Council Decision (CFSP) 2023/434 of 25 February 2023 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union,* L 059I (2023). http://data.europa.eu/eli/dec/2023/434/oj

Council of the European Union. (2022a, April 8). *EU adopts fifth round of sanctions against Russia over its military aggression against Ukraine* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/04/08/eu-adopts-fifth-round-of-sanctions-against-russia-over-its-military-aggression-against-ukraine/

Council of the European Union. (2022b, February 28). *EU adopts new set of measures to respond to Russia's military aggression against Ukraine* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/02/28/eu-adopts-new-set-of-measures-to-respond-to-russia-s-military-aggression-against-ukraine/

Council of the European Union. (2022c, March 15). *Fourth package of sanctions in view of Russia's military aggression against Ukraine: 15 additional individuals and 9 entities subject to EU restrictive measures* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/03/15/fourth-package-of-sanctions-in-view-of-russia-s-military-aggression-against-ukraine-15-additional-individuals-and-9-entities-subject-to-eu-restrictive-measures/

Council of the European Union. (2022d, October 6). *Latest package of sanctions in view of Russia's escalating aggression against Ukraine: EU adopts restrictive measures against an additional 30 individuals and 7 entities* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/10/06/latest-package-of-sanctions-in-view-of-russia-s-escalating-aggression-against-ukraine-eu-adopts-restrictive-measures-against-an-additional-30-individuals-and-7-entities/

Council of the European Union. (2022e, October 7). *Remarks by President Charles Michel following the informal meeting of the EU Heads of State or Government in Prague* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/10/07/remarks-by-president-charles-michel-following-the-informal-meeting-of-the-eu-heads-of-state-or-government-in-prague/

Council of the European Union. (2022f, June 3). *Russia's aggression against Ukraine: EU adopts sixth package of sanctions* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/06/03/russia-s-aggression-against-ukraine-eu-adopts-sixth-package-of-sanctions/

Council of the European Union. (2022g, February 28). *Russia's military aggression against Ukraine: Council imposes sanctions on 26 persons and one entity* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/02/28/russia-s-military-aggression-against-ukraine-council-imposes-sanctions-on-26-persons-and-one-entity/

Council of the European Union. (2022h, February 25). *Russia's military aggression against Ukraine: EU imposes sanctions against President Putin and Foreign Minister Lavrov and adopts wide-ranging individual and economic sanctions* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/02/25/russia-s-military-aggression-against-ukraine-eu-imposes-sanctions-against-president-putin-and-foreign-minister-lavrov-and-adopts-wide-ranging-individual-and-economic-sanctions/

Council of the European Union. (2022i, February 23). *Russian recognition of the non-government controlled areas of the Donetsk and Luhansk oblasts of Ukraine as independent entities: EU adopts package of sanctions* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/02/23/russian-recognition-of-the-non-government-controlled-areas-of-the-donetsk-and-luhansk-oblasts-of-ukraine-as-independent-entities-eu-adopts-package-of-sanctions/

Council of the European Union. (2022j, December 16). *Russia's war of aggression against Ukraine: The EU blacklists additional 141 individuals and 49 entities* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/12/16/russia-s-war-of-aggression-against-ukraine-the-eu-blacklists-additional-141-individuals-and-49-entities/

Council of the European Union. (2022k, June 3). *Ukraine: Declaration by the High Representative on behalf of the EU on attempts of the Russian Federation to forcefully integrate parts of Ukrainian territory* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/06/03/ukraine-declaration-by-the-high-representative-on-behalf-of-the-eu-on-attempts-of-the-russian-federation-to-forcefully-integrate-parts-of-ukrainian-territory/

Council of the European Union. (2022l, April 4). *Ukraine: Declaration by the High Representative on behalf of the EU on Russian atrocities committed in Bucha and other Ukrainian towns* [Press release]. https://www.consilium.europa.eu/de/press/press-releases/2022/04/04/ukraine-declaration-by-the-high-representative-on-behalf-of-the-eu-on-russian-atrocities-committed-in-bucha-and-other-ukrainian-towns/

Council of the European Union. (2022m, February 22). *Ukraine: Declaration by the High Representative on behalf of the European Union on the decisions of the Russian Federation further undermining Ukraine's sovereignty and territorial integrity* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/02/22/ukraine-declaration-by-the-high-representative-on-behalf-of-the-european-union-on-the-decisions-of-the-russian-federation-further-undermining-ukraine-s-sovereignty-and-territorial-integrity/

Council of the European Union. (2022n, February 24). *Ukraine: Declaration by the High Representative on behalf of the European Union on the invasion of Ukraine by armed forces of the Russian Federation* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2022/02/24/ukraine-declaration-by-the-high-representative-on-behalf-of-the-european-union-on-the-invasion-of-ukraine-by-armed-forces-of-the-russian-federation/

Council of the European Union. (2023, February 25). *10th package of sanctions on Russia's war of aggression against Ukraine: The EU includes additional 87 individuals and 34 entities to the EU's sanctions list* [Press release]. https://www.consilium.europa.eu/en/press/press-releases/2023/02/25/10th-package-of-sanctions-on-russia-s-war-of-aggression-against-ukraine-the-eu-includes-additional-87-individuals-and-34-entities-to-the-eu-s-sanctions-list/

Council Regulation (EU) 2022/262 of 23 February 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 042I (2022). http://data.europa.eu/eli/reg/2022/262/oj

Council Regulation (EU) 2022/328 of 25 February 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 049 (2022). http://data.europa.eu/eli/reg/2022/328/oj

Council Regulation (EU) 2022/334 of 28 February 2022 amending Council Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 057 (2022). http://data.europa.eu/eli/reg/2022/334/oj

Council Regulation (EU) 2022/428 of 15 March 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 087I (2022). http://data.europa.eu/eli/reg/2022/428/oj

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, *Official Journal of the European Union*, L 111 (2022). http://data.europa.eu/eli/reg/2022/576/oj

Council Regulation (EU) 2022/879 of 3 June 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 153 (2022). http://data.europa.eu/eli/reg/2022/879/oj

Council Regulation (EU) 2022/1273 of 21 July 2022 amending Regulation (EU) No 269/2014 concerning restrictive measures in respect of actions undermining or threatening the territorial integrity, sovereignty and independence of Ukraine, *Official Journal of the European Union,* L 194 (2022). http://data.europa.eu/eli/reg/2022/1273/oj

Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices, *Official Journal of the European Union,* L 261I (2022). http://data.europa.eu/eli/reg/2022/1854/oj

Council Regulation (EU) 2022/2474 of 16 December 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 322I (2022). http://data.europa.eu/eli/reg/2022/2474/oj

Council Regulation (EU) 2023/427 of 25 February 2023 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 059I (2023). http://data.europa.eu/eli/reg/2023/427/oj

European Commission. (2022, February 24). *Statement by President von der Leyen on Russia's unprecedented military aggression against Ukraine* [Statement]. https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_1423

European Council. (2022, February 24). *European Council meeting* [Meeting information]. https://www.consilium.europa.eu/en/meetings/european-council/2022/02/24/

European Council. (2022, March 10-11). *European Council meeting* [Meeting information]. https://www.consilium.europa.eu/en/meetings/european-council/2022/03/10-11/

US Primary Sources

Biden, J. R., Jr. (2022, February 22). *Remarks by President Biden announcing response to Russian actions in Ukraine* [Speech]. Biden White House Archive. https://bidenwhitehouse.archives.gov/briefing-room/speeches-remarks/2022/02/22/remarks-by-president-biden-announcing-response-to-russian-actions-in-ukraine/

Biden, J. R., Jr. (2022, February 23). *Statement by President Biden on Russia's unprovoked and unjustified attack on Ukraine* [Statement]. Biden White House Archive. https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2022/02/23/statement-by-president-biden-on-russias-unprovoked-and-unjustified-attack-on-ukraine/

Biden, J. R., Jr. (2022, March 8). *Remarks by President Biden announcing U.S. ban on imports of Russian oil, liquefied natural gas, and coal* [Speech]. Biden White House Archive. https://bidenwhitehouse.archives.gov/briefing-room/speeches-remarks/2022/03/08/remarks-by-president-biden-announcing-u-s-ban-on-imports-of-russian-oil-liquefied-natural-gas-and-coal/

Biden, J. R., Jr. (2022, March 11). *Remarks by President Biden announcing actions to continue to hold Russia accountable* [Speech]. Biden White House Archive. https://bidenwhitehouse.archives.gov/briefing-room/speeches-remarks/2022/03/11/remarks-by-president-biden-announcing-actions-to-continue-to-hold-russia-accountable/

Biden, J. R., Jr. (2023, January 25). *Remarks by President Biden on continued support for Ukraine* [Speech]. Biden White House Archive. https://bidenwhitehouse.archives.gov/briefing-room/speeches-remarks/2023/01/25/remarks-by-president-biden-on-continued-support-for-ukraine/

Blinken, A. J. (2022, December 5). *U.S.–EU Trade and Technology Council ministerial co-chairs joint press availability* [Press availability]. U.S. Department of State. https://2021-2025.state.gov/secretary-antony-j-blinken-u-s-eu-trade-and-technology-council-ministerial-co-chairs-joint-press-availability/

Exec. Order No. 14066, 87 Fed. Reg. 13625 (2022). https://www.federalregister.gov/d/2022-05232

Exec. Order No. 14068, 87 Fed. Reg. 14381 (2022). https://www.federalregister.gov/d/2022-05554

Exec. Order No. 14071, 87 Fed. Reg. 20999 (2022). https://www.federalregister.gov/d/2022-07757

U.S. Department of Commerce, Bureau of Industry and Security. (2022a, February 24). *Commerce implements sweeping restrictions on exports to Russia in response to further invasion of Ukraine* [Press release]. https://www.bis.gov/press-release/commerce-implements-sweeping-restrictions-exports-russia-response-further-invasion-ukraine

U.S. Department of Commerce, Bureau of Industry and Security. (2022b, March 11). *Commerce restricts the export of luxury goods to Russia and Belarus and to Russian and Belarusian oligarchs and malign actors in latest response to aggression against Ukraine* [Press release]. https://www.bis.doc.gov/index.php/documents/about-bis/newsroom/press-releases/2932-2022-03-11-press-release-bis-luxury-goods-rule/file

U.S. Department of State. (2022a, March 15). *Additional humanitarian assistance for the people of Ukraine* [Press statement]. https://2021-2025.state.gov/additional-humanitarian-assistance-for-the-people-of-ukraine/

U.S. Department of State. (2022b, February 28). *Additional measures against the Russian financial system* [Press statement]. https://2021-2025.state.gov/additional-measures-against-the-russian-financial-system/

U.S. Department of State. (2022c, March 11). *Continuing to hold the Kremlin to account* [Press statement]. https://2021-2025.state.gov/continuing-to-hold-the-kremlin-to-account/

U.S. Department of State. (2022d, February 25). *Imposing sanctions on President Putin and three other senior Russian officials* [Press statement]. https://2021-2025.state.gov/imposing-sanctions-on-president-putin-and-three-other-senior-russian-officials/

U.S. Department of State. (2022e, June 3). *One hundred days of the Kremlin's war against Ukraine* [Press statement]. https://2021-2025.state.gov/one-hundred-days-of-the-kremlins-war-against-ukraine/

U.S. Department of State. (2022f, March 15). *Promoting accountability for human rights abuses perpetrated by the governments of Russia and Belarus* [Press statement]. https://2021-2025.state.gov/promoting-accountability-for-human-rights-abuses-perpetrated-by-the-governments-of-russia-and-belarus/

U.S. Department of State. (2022g, September 15). *600 million in additional U.S. military assistance for Ukraine* [Press statement]. https://2021-2025.state.gov/600-million-in-additional-u-s-military-assistance-for-ukraine/

U.S. Department of State. (2022h, April 6). *Targeting additional Russian financial institutions, officials, and other individuals* [Press statement]. https://2021-2025.state.gov/targeting-additional-russian-financial-institutions-officials-and-other-individuals/

U.S. Department of State. (2022i, May 8). *Targeting Russia's financial, defense, and marine sectors and promoting accountability for Russian and Belarusian military officials* [Press statement]. https://2021-2025.state.gov/targeting-russias-financial-defense-and-marine-sectors-and-promoting-accountability-for-russian-and-belarusian-military-officials/

U.S. Department of State. (2022j, September 15). *Targeting senior Russian officials, defense industrial base, financial infrastructure leaders, and human rights abusers* [Press statement]. https://2021-2025.state.gov/targeting-senior-russian-officials-defense-industrial-base-financial-infrastructure-leaders-and-human-rights-abusers/

U.S. Department of State. (2023a, February 24). *Continued support for Ukraine to withstand Russia's assaults* [Press statement]. https://2021-2025.state.gov/continued-support-for-ukraine-to-withstand-russias-assaults/

U.S. Department of State. (2023b, February 24). *The United States imposes additional sweeping costs on Russia* [Press statement]. https://2021-2025.state.gov/the-united-states-imposes-additional-sweeping-costs-on-russia/

U.S. Department of the Treasury. (2022a, February 28). *Treasury prohibits transactions with Central Bank of Russia and imposes sanctions on key sources of Russia's wealth* [Press release]. https://home.treasury.gov/news/press-releases/jy0612

U.S. Department of the Treasury. (2022b, March 11). *Treasury sanctions Kremlin elites, leaders, oligarchs, and family for enabling Putin's war against Ukraine* [Press release]. https://home.treasury.gov/news/press-releases/jy0650

U.S. Department of the Treasury. (2022c, September 15). *Treasury targets additional facilitators of Russia's aggression in Ukraine* [Press release]. https://home.treasury.gov/news/press-releases/jy0954

U.S. Department of the Treasury. (2022d, February 24). *U.S. Treasury announces unprecedented & expansive sanctions against Russia, imposing swift and severe economic costs* [Press release]. https://home.treasury.gov/news/press-releases/jy0608
U.S. Department of the Treasury. (2022e, April 6). *U.S. Treasury escalates sanctions on Russia for its atrocities in Ukraine* [Press release]. https://home.treasury.gov/news/press-releases/jy0705
U.S. Department of the Treasury. (2022f, February 22). *U.S. Treasury imposes immediate economic costs in response to actions in the Donetsk and Luhansk regions* [Press release]. https://home.treasury.gov/news/press-releases/jy0602
U.S. Department of the Treasury. (2022g, May 8). *U.S. Treasury takes sweeping action against Russia's war efforts* [Press release]. https://home.treasury.gov/news/press-releases/jy0771
U.S. Department of the Treasury. (2023, February 24). *Targeting key sectors, evasion efforts, and military supplies, Treasury expands and intensifies sanctions against Russia* [Press release]. https://home.treasury.gov/news/press-releases/jy1296
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022a, May 8). *Determination pursuant to section 1(a)(i) of Executive Order 14024.* https://ofac.treasury.gov/media/922951/download?inline=
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022b, November 21). *Determination pursuant to section 1(a)(ii) of Executive Order 14071: Prohibitions on certain services as they relate to the maritime transport of crude oil of Russian Federation origin.* https://ofac.treasury.gov/media/929501/download?inline=
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022c, May 8). *Determination pursuant to section 1(a)(ii) of Executive Order 14071: Prohibitions related to certain accounting, trust and corporate formation, and management consulting services.* https://home.treasury.gov/system/files/126/determination_05082022_eo14071.pdf
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022d, September 15). *Determination pursuant to section 1(a)(ii) of Executive Order 14071: Prohibitions related to certain quantum computing services.* https://ofac.treasury.gov/media/926591/download?inline=
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022e, December 5). *Determination pursuant to sections 1(a)(ii), 1(b), and 5 of Executive Order 14071: Price cap on crude oil of Russian Federation origin.* https://home.treasury.gov/system/files/126/20221205_Price_cap_determination.pdf
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022f, February 22). *Directive 1A under Executive Order 14024: Prohibitions related to certain sovereign debt of the Russian Federation.* https://home.treasury.gov/system/files/126/russia_directive_1a.pdf
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022g, February 24). *Directive 2 under Executive Order 14024: Prohibitions related to correspondent or payable-through accounts and processing of transactions involving certain foreign financial institutions.* https://home.treasury.gov/system/files/126/correspondent_accounts_directive_2.pdf
U.S. Department of the Treasury, Office of Foreign Assets Control. (2022h, February 24). *Directive 3 under Executive Order 14024: Prohibitions related to new debt and equity of certain Russia-related entities.* https://home.treasury.gov/system/files/126/new_debt_and_equity_directive_3.pdf
U.S. Department of the Treasury, Office of Foreign Assets Control. (2023a, February 24). *Determination pursuant to section 1(a)(i) of Executive Order 14024: Metals and mining*

sector of the Russian Federation economy. https://www.federalregister.gov/documents/2023/03/21/2023-05645/publication-of-russian-harmful-foreign-activities-sanctions-regulations-determination

U.S. Department of the Treasury, Office of Foreign Assets Control. (2023b, May 19). *Directive 4 (as amended) under Executive Order 14024: Prohibitions related to transactions involving the Central Bank of the Russian Federation, the National Wealth Fund of the Russian Federation, and the Ministry of Finance of the Russian Federation.* https://ofac.treasury.gov/media/918806/download?inline=

Multilateral Documents

Biden, J. R., Jr., & von der Leyen, U. (2023, March 15). *Joint statement by President Biden and President von der Leyen* [Statement]. European Parliament. https://www.europarl.europa.eu/cmsdata/266802/20230315-d-us-JointStatement_President_Biden_President_von_der_Leyen-en.pdf

European Commission. (2022a, December 5). *EU-US joint statement of the Trade and Technology Council* [Joint statement]. https://ec.europa.eu/commission/presscorner/detail/en/statement_22_7516

European Commission. (2022b, April 29). *Joint statement between the United States and the European Commission on European energy security* [Joint statement]. https://ec.europa.eu/commission/presscorner/api/files/document/print/en/statement_22_2750/STATEMENT_22_2750_EN.pdf

European Commission. (2023, March 10). *Joint statement by President Biden and President von der Leyen* [Joint statement]. https://www.europarl.europa.eu/cmsdata/266802/20230315-d-us-JointStatement_President_Biden_President_von_der_Leyen-en.pdf

European Union, Permanent Mission to the World Trade Organization. (2022, March 15). *Joint statement on the aggression by the Russian Federation against Ukraine with the support of Belarus* [Joint statement]. https://www.eeas.europa.eu/delegations/world-trade-organization-wto/joint-statement-aggression-russian-federation-against-ukraine-support-belarus_en

Federal Foreign Office. (2022a, February 22). *G7 chair's statement on today's G7 call on Russia and Ukraine* [Press release]. https://www.auswaertiges-amt.de/en/newsroom/news/g7-russia-ukraine-2512920

Federal Foreign Office. (2022b, March 15). *Statement of the G7 non-proliferation directors group on a nuclear safety and security framework for Ukraine* [Press release]. https://www.auswaertiges-amt.de/en/newsroom/news/2517318-2517318

Group of Seven. (2022a, March 10). *G7 energy ministers' joint statement* [Joint statement]. https://www.bundesregierung.de/resource/blob/998440/2018646/d87dc536764dd66becb351c623c0c4db/2022-03-10-g7-energy-minister-jointstatement-erklaerung-en-1--data.pdf

Group of Seven. (2022b, March 11). *G7 extraordinary agriculture ministers' meeting – Statement on the invasion of Ukraine by armed forces of the Russian Federation* [Statement]. https://www.bundesregierung.de/resource/blob/997532/2014292/6e574557ca1f49b057a25ac9df239ac4/2022-03-11-g7-agrar-eng-data.pdf

Group of Seven. (2022c, March 11). *G7 leaders' statement* [Statement]. https://www.bundesregierung.de/resource/blob/997532/2014234/39e142fa878dce9e420ef4d29c17969d/2022-03-11-g7-leader-eng-data.pdf

Group of Seven. (2022d, April 7). *G7 leaders' statement* [Statement]. https://www.g7germany.de/resource/blob/997532/2024356/f5d27e428c7f4d0f4086bd6bbafc6da0/2022-04-07-g7-leaders-eng-data.pdf

Group of Seven. (2022e, May 8). *G7 leaders' statement* [Statement]. https://www.g7germany.de/resource/blob/998352/2037590/4765108ccd471e57c87a11faf0964e79/2022-05-08-g7-leaders-statement-eng-data.pdf

Group of Seven. (2022f, February 24). *G7 leaders' statement on the invasion of Ukraine by armed forces of the Russian Federation* [Statement]. https://www.g7germany.de/resource/blob/998352/2007730/6a4fc79947784765833b23ed762de76d/2022-02-24-g7-erklaerung-en-data.pdf

Group of Seven. (2022g, September 15). *G7 trade ministers' statement* [Joint statement]. https://www.bundeswirtschaftsministerium.de/Redaktion/DE/Downloads/G/20220915-g7-trade-ministers-statement-neuhardenberg-15-september-2022.pdf

Group of Seven. (2022h, April 7). *Statement of the G7 foreign ministers on Russia's war of aggression against Ukraine* [Statement]. https://www.g7germany.de/resource/blob/997532/2024362/c2c8d2f4f575b44478e6a21999d0ce2d/2022-04-07-erklaerung-g7-aussenminister-eng-data.pdf

Group of Seven. (2023, February 24). *G7 leaders' statement* [Statement]. https://www.consilium.europa.eu/en/press/press-releases/2023/02/24/g7-leaders-statement/pdf/

North Atlantic Treaty Organization. (2022, April 6). *Doorstep statement by the NATO Secretary General ahead of the meetings of NATO ministers of foreign affairs* [Press conference transcript]. https://www.nato.int/en/news-and-events/events/transcripts/2022/04/06/doorstep-statement

North Atlantic Treaty Organization. (2022a, April 7). NATO allies agree to further strengthen and sustain support for Ukraine [Statement].

North Atlantic Treaty Organization. (2022b, February 28). "NATO's defensive shield is strong", says Chair of the NATO Military Committee [Statement].

North Atlantic Treaty Organization. (2022c, February 22). NATO Secretary General: This is the most dangerous moment in European security for a generation [Statement].

North Atlantic Treaty Organization. (2022d, March 24). *Statement by NATO heads of state and government on Russia's attack on Ukraine* [Statement]. https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2022/03/24/statement-by-nato-heads-of-state-and-government

North Atlantic Treaty Organization. (2022e, February 24). *Statement by the North Atlantic Council on Russia's attack on Ukraine* [Statement]. https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2022/02/24/statement-by-the-north-atlantic-council-on-russias-attack-on-ukraine

North Atlantic Treaty Organization. (2023, February 24). *Statement by the North Atlantic Council marking one year of Russia's war of aggression against Ukraine* [Statement]. https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2023/02/24/statement-by-the-north-atlantic-council-marking-one-year-of-russias-war-of-aggression-against-ukraine

The White House. (2022, December 5). *Fact sheet: U.S.-EU Trade and Technology Council advances concrete action on transatlantic cooperation* [Fact sheet]. Biden White House

Archive. https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2022/12/05/fact-sheet-u-s-eu-trade-and-technology-council-advances-concrete-action-on-transatlantic-cooperation/

Secondary Sources

Bapat, N. A., & Morgan, T. C. (2009). Multilateral versus unilateral sanctions reconsidered: A test using new data. *International Studies Quarterly*, *53*(4), 1075-1094. https://www.jstor.org/stable/27735136

Barber, J. (1979). Economic sanctions as a policy instrument. *International Affairs (Royal Institute of International Affairs 1944-)*, *55*(3), 367-384. https://doi.org/10.2307/2615145

Borzyskowski, I. v., & Portela, C. (2016). Piling on: the rise of sanctions cooperation between regional organizations, the United States, and the EU. Freie Universität Berlin http://www.ssoar.info/ssoar/bitstream/document/46232/1/ssoar-2016-borzyskowski_et_al-Piling_on_The_Rise_of.pdf

Cronqvist, L. (2019). *Qualitative comparative analysis (QCA): Eine Einführung mit TOSMANA und dem QCA add-in* (1. Aufl.). Hampp, Baden-Baden. https://doi.org/10.978.395710/3505

de Galbert, S. (2016). *Transatlantic Economic Statecraft: The challenge to building a balanced transatlantic sanctions policy between the United States and the European Union*. Center for a New American Security. https://www.jstor.org/stable/resrep06272

Delreux, T., & Keukeleire, S. (2022). *The foreign policy of the European Union* (3rd ed.). Bloomsbury Academic.

Drezner, D. W. (2011). Sanctions sometimes smart: Targeted sanctions in theory and practice. *International Studies Review*, *13*(1), 96-108. https://www.jstor.org/stable/23016144

Escribà-Folch, A., & Wright, J. (2010). Dealing with tyranny: International sanctions and the survival of authoritarian rulers. *International Studies Quarterly*, *54*(2), 335-359. https://www.jstor.org/stable/40664170

European Union. (2023). *General framework for EU sanctions.* https://eur-lex.europa.eu/EN/legal-content/summary/general-framework-for-eu-sanctions.html

Fahey, E. (2023). *The Routledge handbook of transatlantic relations* (1st ed.). Routledge. https://doi.org/10.4324/9781003283911

Falke, A. (2000). The EU–US Conflict over sanctions policy: Confronting the hegemon. *European Foreign Affairs Review*, *5*(2), 139-63. https://doi.org/10.54648/268818

Gel'man, V. (2023). Exogenous shock and Russian studies. *Post-Soviet Affairs*, *39*(1-2), 1-9. https://doi.org/10.1080/1060586X.2022.2148814

George, A. L., & Bennett, A. (2005). *Case studies and theory development in the social sciences*. MIT Press. https://mitpress.mit.edu/9780262572224/case-studies-and-theory-development-in-the-social-sciences/

Harrell, P. E., Keatinge, T., Lain, S., & Rosenberg, E. (2017). *The future of transatlantic sanctions on Russia.* Center for a New American Security. http://www.jstor.org/stable/resrep06243

Hill, C. (1993). The capability-expectations gap, or conceptualizing Europe's international role. *JCMS: Journal of Common Market Studies*, *31*(3), 305-328. https://doi.org/10.1111/j.1468-5965.1993.tb00466.x

Immenkamp, B. (2024). *EU sanctions: A key foreign and security policy instrument*. (EPRS Briefing PE 760.416). European Parliamentary Research Service. https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2024)760416

Jianwei, L. (2019). US-EU cooperation on economic sanctions: Characteristics, limitations and prospects. *China International Studies, 79*, 167-184.

Lindsay, J. M. (1986). Trade sanctions as policy instruments: A re-examination. *International Studies Quarterly*, *30*(2), 153-173. https://doi.org/10.2307/2600674

Lohmann, S. (2016). The convergence of transatlantic sanction policy against Iran. *Cambridge Review of International Affairs*, *29*(3), 930-951. https://doi.org/10.1080/09557571.2016.1166479

Luhmann, H. J. (2022). Ukrainekrieg: Stopp der Gaslieferungen spaltet EU. *Wirtschaftsdienst, 102*(6), 415-422. https://www.wirtschaftsdienst.eu/inhalt/jahr/2022/heft/6/beitrag/ukrainekrieg-stopp-der-gaslieferungen-spaltet-eu.html

Major, S. (2012). Timing is everything: Economic sanctions, regime type, and domestic instability. *International Interactions*, *38*(1), 79-110. https://doi.org/10.1080/03050629.2012.640253

Marinov, N. (2005). Do economic sanctions destabilize country leaders? *American Journal of Political Science*, *49*(3), 564-576. https://doi.org/10.2307/3647732

Martin, L. L. (1993). *Coercive cooperation: Explaining multilateral economic sanctions*. Princeton University Press.

Marx, A., Cambré, B., & Rihoux, B. (2013). Crisp-set qualitative comparative analysis in organizational studies. In P. M. Fiss, B. Cambré, & A. Marx (Eds.), *Configurational theory and methods in organizational research* (*Research in the Sociology of Organizations*, Vol. 38, pp. 23-47). Emerald.

Mattke, J., Maier, C., Weitzel, T., Gerow, J. E., & Thatcher, J. B. (2022). Qualitative Comparative Analysis (QCA) In information systems research: Status quo, guidelines, and future directions. *Communications Of The Association For Information Systems*, *50*, 208-240. https://doi.org/10.17705/1cais.05008

Mayring, P., & Fenzel, T. (2014). Qualitative Inhaltsanalyse. In N. Baur. & J. Blasius (Eds.), *Handbuch Methoden der empirischen Sozialforschung* (2nd ed., pp. 633-648). Springer VS, Wiesbaden. https://doi.org/10.1007/978-3-658-21308-4_42

Mello, P. A. (2021). *Qualitative comparative analysis: An introduction to research design and application*. Georgetown University Press.

Mello, P. A. (2023). *R manual for QCA* [Data set]. Harvard Dataverse. https://doi.org/10.7910/DVN/KYF7VJ

Morgan, T. C., Bapat, N., & Krustev, V. (2009). The threat and imposition of economic sanctions, 1971–2000. *Conflict Management and Peace Science*, *26*(1), 92-110. https://www.jstor.org/stable/26275122

Morgan, T. C., & Schwebach, V. L. (1997). Fools suffer gladly: The use of economic sanctions in international crises. *International Studies Quarterly*, *41*(1), 27-50. https://doi.org/10.1111/0020-8833.00032

Nephew, R. (2020). Implementation of sanctions: United States. In M. Asada (Ed.), *Economic sanctions in international law and practice* (pp. 93–115). Routledge.

Oana, I., & Schneider, C. Q. (2024). A robustness test protocol for applied QCA: Theory and R software application. *Sociological Methods & Research*, *53*(1), 57-88. https://doi.org/10.1177/00491241211036158

Peksen, D. (2019). When do imposed economic sanctions work? A critical review of the sanctions effectiveness literature. *Defence and Peace Economics*, *30*(6), 635-647. https://doi.org/10.1080/10242694.2019.1625250

Portela, C. (2014). The EU's use of 'targeted' sanctions: Evaluating effectiveness. *Research Collection School of Social Sciences.* (Working paper No. 1672). Singapore Management University. https://ink.library.smu.edu.sg/soss_research/1672

Portela, C., Pospieszna, P., Skrzypczyńska, J., & Walentek, D. (2020). Consensus against all odds: explaining the persistence of EU sanctions on Russia. *Journal Of European Integration*, *43*(6), 683-699. https://doi.org/10.1080/07036337.2020.1803854

Portela, C., & Raube, K. (2009). (In-)Coherence in EU foreign policy: Exploring sources and remedies. *Archive Of European Integration (AEI) (University Of Pittsburgh)*, 1. http://aei.pitt.edu/33122/1/portela._clara_(2).pdf

Portela, C., & Raube, K. (2012). The EU polity and foreign policy coherence, *Journal of Contemporary European Research*, *8*(1), 3-20.

Raube, K., & Rubio, R. V. (2022). Coherence at Last? Transatlantic cooperation in response to the geostrategic challenge of China. *Politics And Governance*, *10*(2), 176-185. https://doi.org/10.17645/pag.v10i2.5022

Riddervold, M., & Newsome, A. (2022). Introduction: Out with the old, In with the new? explaining changing EU–US Relations. *Politics And Governance*, *10*(2), 128-133. https://doi.org/10.17645/pag.v10i2.5597

Thiem, A. (2022). Qualitative comparative analysis (QCA). In *Edward Elgar Publishing eBooks* (S. 607-628). https://doi.org/10.4337/9781839101014.00044

Tsouloufas, G., & Rochat, M. (2023). Revisiting the effectiveness of economic sanctions in the context of Russia's invasion of Ukraine. *Canadian Foreign Policy Journal*, *29*(3), 285-300. https://doi.org/10.1080/11926422.2023.2198247

Vahe, J. (2021). *Sanctions as a Foreign Policy Tool: Comparing EU and US sanctions on the Russian Federation for Ukraine related activities*. [Master's thesis] University of Tartu.

Wagemann, C., Goerres, A., & Siewert, M. B. (2020). *Handbuch Methoden der Politikwissenschaft.* Springer VS. https://doi.org/10.1007/978-3-658-16936-7

Weber, P. M., & Schneider, G. (2020). How many hands to make sanctions work? Comparing EU and US sanctioning efforts. *European Economic Review*, *130*(4), 2-23. https://doi.org/10.1016/j.euroecorev.2020.103595

Wei, P. (2025). You're the one I want: Substitutability, policy preference divergence, and the cost of multilateral sanctions. *International Interactions, 51*(5), 760-791. https://doi.org/10.1080/03050629.2025.2520607

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE.

R Packages

ggplot2
Wickham, H. (2016). *ggplot2: Elegant graphics for data analysis*. Springer. https://ggplot2.tidyverse.org

tidyverse
Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L. D., François, R., Grolemund, G., Hayes, A., Henry, L., Hester, J., Kuhn, M., Pedersen, T. L., Miller, E., Bache, S. M., Müller, K., Ooms, J., Robinson, D., Seidel, D. P., Spinu, V., Takahashi, K., Vaughan, D., Wilke, C., Woo, K., & Yutani, H. (2019). Welcome to the tidyverse. *Journal of Open Source Software, 4*(43), 1686. https://doi.org/10.21105/joss.01686

Readxl
Wickham, H., & Bryan, J. (2025). *readxl: Read Excel files* (Version 1.4.5) [R package]. https://CRAN.R-project.org/package=readxl

SetMethods
Oana, I.-E., & Schneider, C. Q. (2018). SetMethods: An add-on R package for advanced QCA. *The R Journal, 10*(1), 507–533. https://journal.r-project.org/archive/2018/RJ-2018-031/

QCA
Dusa, A. (2019). *QCA with R: A comprehensive resource.* Springer International Publishing.

knitr
Xie, Y. (2025). knitr: *A general-purpose package for dynamic report generation in R* (Version 1.50) [R package]. https://yihui.org/knitr/

9. Appendix

Appendix A: Comprehensive Coding Scheme

1. Investigation period and sample

All transatlantic sanctions decisions made in the first year of the war in Ukraine are being examined, as far as they are accessible. The EU sanctions packages provide the structure for this. The analysis was intended to begin with the first EU sanctions package and its corresponding U.S. measures, and conclude with the tenth EU sanctions package and its corresponding U.S. measures. While gathering the primary documents, two main problems occurred. First, when the EU adopted Council Decision (CFSP) 2022/1271 and Council Regulation (EU) 2022/1273 of July 21, 2022, no corresponding U.S. measures could be identified in the Federal Register. As the research interest lies in comparing sanction measures, this case was removed from the sample, accounting for a small n design of nine cases. Second, in the case of the EU's sixth sanctioning package, which was adopted on June 3, 2022, U.S. measures were already issued on May 8, 2022. They became effective on June 7, 2022. With the EU's eighth sanctioning package of October 10, 2022, U.S. measures were already issued September 15, 2022, and became effective on October 15, 2022. A clear distinction must be made here: the date of issuance is important for determining temporal coherence, while the date of effect serves as justification for including these primary documents in the analysis. As EU measures take effect immediately and U.S. measures follow after a few days, there is solid ground for a content analysis. As one case had already been removed, the two remaining cases were kept to ensure at least nine cases for analysis.

The following time frame is examined: February 22, 2022-February 25, 2023

2. Units of Analysis

The *coding unit* corresponds to the smallest text component (e.g., semantic unit, word, sentence, etc.). In this research, it refers to a specific sanction measure, target sector, or coordination statement, within primary documents. One example would be the sentence “in coordination with partners” for communicative coherence.

The *context unit* determines the information for individual coding (e.g., sentence, paragraph, interview response, entire interview). Generally, the entire primary documents in which the coded passage appears are relevant, as the document's context is required to interpret the legal and political meaning of each measure. Nevertheless, depending on the category, a focus is set, as primary documents are very long and contain a lot of information:

- For timing coherence, the header and bottom part are relevant, as a concrete date must be determined.
- For substantive and communicative coherence, the main body paragraph of E.O.s, Regulations, and Decisions is analyzed, excluding the preamble and the annex. The preamble serves to place the document within its political and legal context and might be relevant for the empirical investigation of the IVs. For the dimensions of the DV, the specific measures and coordination framing contained in the body paragraph of the document are relevant. For reasons of feasibility, the annex is also excluded from the analysis. An exception to this is made if the annex is explicitly mentioned in the body paragraph. If such a mention occurs, the annex must be consulted to identify the specific measures. Press Releases are analyzed in their total length.
- For all IVs, the whole document is coded.

The *evaluation unit* is defined as the portion of material that is compared to a category system. In this research, the evaluation unit is every empirical case that involves coding and comparing all EU and U.S. primary documents against the coding scheme to derive coherence scores.

3. Dependent Variable

3.1.Decision Timing

Definition: This dimension measures the simultaneity of EU and U.S. public sanction communication in each case. It captures political simultaneity rather than the lag in administrative enforcement. Legal-effect dates are excluded, as they differ procedurally between systems and would bias the comparison. For the EU, the Council's adoption date, as printed in the heading of the Decision/Regulation, is of importance. For the U.S., the signing date of the Executive Order or the press release date of the OFAC determination is used. Both represent the moment the sanction was politically decided and publicly communicated.

Key question: How closely aligned are the EU and the U.S. in the timing of their sanctions announcements?

Coding rules: A case receives a score for this dimension according to the following criteria:

- **Score 0:** A time lag of more than two weeks is observed between the EU and U.S. announcements. This indicates weak temporal linkages and low simultaneity.
- **Score 1:** Announcements occur 3 to 14 days apart, reflecting asymmetrical sequencing and moderate temporal alignment.
- **Score 2:** Sanction decisions are announced within 48 hours, representing the highest level of temporal coherence.

Coder's notes: The time difference between Brussels (CET) and Washington, D.C. (CET – 6 hours) must be considered. Only the temporal dimension is coded; substantive content and communication style fall under the other two dimensions.

Anchor examples:

- Score 0: OFAC determination pursuant to Section 1(a)(ii) of E.O. 14071 from May 8, 2022, and Council Decision (CFSP) 2022/884 from 3 June 2022 (clear temporal delay)
- Score 1: E.O. 14066 of March 8, 2022, and Council Regulation (EU) 2022/428 of 15 March 2022 (medium-range gaps- 7 days)
- Score 2: OFAC determination pursuant to section 1(a)(i) of E.O. 14024 from 22 February 2022, and Council Decision (CFSP) 2022/264 of 23 February 2022 (within 24 hours)

3.2.Targeted Sectors and Employed Instruments

Definition: This dimension evaluates the degree of overlap between the sectors and instruments of EU and U.S. sanctions. In MAXQDA, sectors are subcategorized into *Energy, Finance, Defense and Industry, Individuals and Elites, Trade and Export, Transport and Logistics, Media and Information, and Other*, serving as a residual category.

Key question: To what extent do EU and U.S. sanctions target the same sectors using similar types of measures?

Coding rules: A case receives a score for this dimension according to the following criteria:

- **Score 0:** EU and U.S. measures target different sectors and employ different instruments, indicating minimal substantive alignment.
- **Score 1:** There is an overlap in fewer than three sectors, and instruments are complementary rather than identical, reflecting partial but incomplete convergence.
- **Score 2:** There is an overlap of at least three sectors and measures that employ identical instruments, indicating high substantive coherence.

Coder's notes: Only the material content is coded- sectoral targeting and the nature of the measures. Timing or communication aspects belong to the other two dimensions of coherence. Additionally, it is important to understand that the same sectors are frequently mentioned in EU and U.S. primary documents. However, this does not necessarily mean that the measures are coherent. Therefore, when a sectoral overlap of three sectors (as defined by the author) is reached, the applied instruments are examined more closely. The question arises as to whether there are references to the specific instruments used (e.g., visa ban, export ban) and whether these are identical or vary in scope. Instruments are assessed as far as possible. As the coding primarily remains qualitative, quantitative depth cannot always be ensured.

Anchor examples:

- Score 0: EO 14066 Section 1 (a) (8 March 2022): "The following are prohibited: (i) the importation into the United States of the following products of Russian Federation origin: crude oil; petroleum; petroleum fuels, oils, and products of their distillation; liquified natural gas; coal; and coal products; […]". No corresponding EU measures were identified (divergent sectoral focus and instruments).
- Score 1: EO 14068 Section 1(a) (11 March 2022): "The following are prohibited: (i) the importation into the United States of the following products of Russian Federation origin: fish, seafood, and preparation thereof; alcoholic beverages; non-industrial diamonds; and any other products of Russian Federation origin as may be determined by the Secretary of the Treasury, in consultation with the Secretary of State and the

Secretary of Commerce". EU Regulation 2022/428 (15 March 2022): "Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol; spirits, liqueurs and other spirituous beverages" (partial overlap)

- Score 2: EO 14068 Section 1 (a) (11 March 2022): (ii) the exportation, reexportation, sale, or supply, directly or indirectly, from the United States, or by a United States person, wherever located, of luxury goods, and any other items as may be determined by the Secretary of Commerce, in consultation with the Secretary of State and the Secretary of the Treasury, to any person located in the Russian Federation; […]" Council Regulation 2022/428 Artcile 3h (15 March 2022): "It shall be prohibited to sell, supply, transfer or export, directly or indirectly, luxury goods as listed in Annex XVIII, to any natural or legal person, entity or body in Russia or for use in Russia." (after checking Annex XVIII, clear sectoral and instrumental alignment).

3.3.Framing of Institutional Coordination

Definition: This dimension assesses the extent and framing of institutional and diplomatic coordination between the EU and the U.S. in the announcement and communication of sanctions.

Key question: How prominently is institutional coordination framed in public communication?

Coding rules: A case receives a score for this dimension according to the following criteria:

- **Score 0:** No reference to coordination, joint action, or institutional frameworks.
- **Score 1:** Some references to cooperation appear, but the framing remains vague, indirect, or purely diplomatic.
- **Score 2:** Public communication reflects a clearly aligned framing, including explicit references to joint statements, G7 coordination, or synchronized political action.

Coder's notes: Only communicative framing is coded. Temporal and substantive coherence are excluded. Furthermore, if one actor explicitly draws attention to, for example, adopted G7 communiqués, it is assumed that the other actor implicitly agreed to the measures solely by virtue of its membership in the network, even though this is not explicitly mentioned by both sides in official documents. This assumption is made for reasons of feasibility and should be taken into account when interpreting the results. This coding rule has to be followed strictly to distinguish between cases.

Anchor examples:

- Score 1: Council Decision 2022/264 (23 February 2022): "Measures that would be adopted in coordination with partners". OFAC press release (22 February 2022): "Today's actions are taken in close coordination with our partners and allies, […]." (limited, indirect coordination signals)
- Score 2: EU press release 176/22 (25 February 2022): "It [the European Union] will continue strong coordination with partners and allies, with the UN, OSCE, NATO, and the G7". U.S. Department of Commerce press release (24 February 2022): These measures also reflect momentous cooperation among the United States, the European Union, Japan, Australia, the United Kingdom, Canada, and New Zealand, with more expected to join, in aligning on export control policies and requirements" (explicit and unified framing).

4. Independent Variables

4.1.Economic Ties

Definition: Explicitly stated economic interests or dependencies between the EU-Russia or U.S.-Russia that influence sanction efforts.

Key question: Is there a visible economic interest or difference in dependency between the EU / the U.S., and Russia?

A text segment is assigned to category X1 if:

- A specific dependence on Russian energy or raw material imports is mentioned.
- Economic interests or strategic market objectives are mentioned in the context of sanctions (e.g., market stability, price stability, prevention of shocks).
- Economic risks/burdens are identified (e.g., impact on consumers and the industry).

This category is NOT coded if:

- Only "energy security" is mentioned as a geopolitical narrative, without economic justification.
- Only "Russia uses energy as a weapon" is mentioned, without reference to costs, dependence, or markets.
- Only normative statements are made ("unacceptable," "pressure Russia").
- Only diplomatic rhetoric is used ("coordination," "solidarity").
- Only technical sanction texts without an economic dimension.

Coder's notes: Additionally, it is worth noting that 0 indicates that no explicit economic dependency or interest is mentioned in the available case material. It does not mean that the EU/U.S. had no economic interests.

Anchor examples:

- "We agreed to face out our dependency on Russian gas, oil, and coal imports as soon as possible" (Versailles Declaration, p. 5)
- "Given Ukraine is the fourth largest supplier of wheat and produces half of the world's sunflower oil exports, this will additionally have global impacts on food systems and food insecurity" (G7 statement of March 11, 2022, p. 2)
- "A number of G7 members are taking urgent measures to quickly reduce dependency on Russian energy supplies" (G7 statement of March 10, 2022, p. 2).

4.2.Shared Foreign Policy Objectives

Definition: This category captures whether the EU and the U.S. explicitly formulate the same foreign policy objective towards Russia in connection with their respective sanctions decisions.

Key question: Is there an explicit strategic line mentioned from both sides?

A text segment is assigned to category X2 if:

- An EU primary source and a U.S. primary source explicitly state the same purpose in the respective cases.

This category is NOT coded if:

- Coordination without an explicit formulation of purpose is mentioned.
- General political statements without reference to goals are made.
- A pure description of measures without a goal is mentioned.
- Vague value formulas without a sanctions context (e.g., "defending democracy," "supporting freedom") are referred to.
- Only one actor expresses a goal; the other remains silent.

Coder's notes: Distinction has to be made between communicative coherence and X2 (Shared foreign policy objectives). Communicative coherence encompasses exclusively linguistic, rhetorical, or process-related elements of coordination between the EU and the U.S., such as 'acting jointly,' or 'in close coordination. ' These expressions do not indicate common foreign policy objectives. Furthermore, joint statements by organizations in which both the EU and the U.S. are members (e.g., the G7, NATO) are considered to express the objectives of both actors.

Anchor examples:

- "This powerful response was developed in close consultation with our global allies and partners to cut the Russian military off from the technologies and products it needs to sustain its unprovoked and unacceptable aggression" (U.S. Department of Commerce Press Release of February 24, 2022, p. 2)
- "The unprecedented action we are taking today will be significantly limit Russia's ability to use assets to finance its destabilizing activities, and target the funds Putin and his inner circle depend on to enable his invasion of Ukraine" (OFAC Press Release of February 28, 2022, Pos. 10).
- "We remain resolved to isolate Russia further from our economies and the international financial system" (G7 Statement of March 11, 2022, p. 1).

4.3.Political Shock

Definition: Joint perception of a political and moral shock event that triggers a coordinated response.

Key question: Is the event jointly perceived as a threat, thus triggering a joint response?

A text segment is assigned to category X3 if:

- An event is clearly described as a breach, "mass atrocity," "grave escalation," "heinous attack," "unprovoked escalation," etc., and
- This event is cited as the reason for a reaction, escalation, or measures.

This category is NOT coded if:

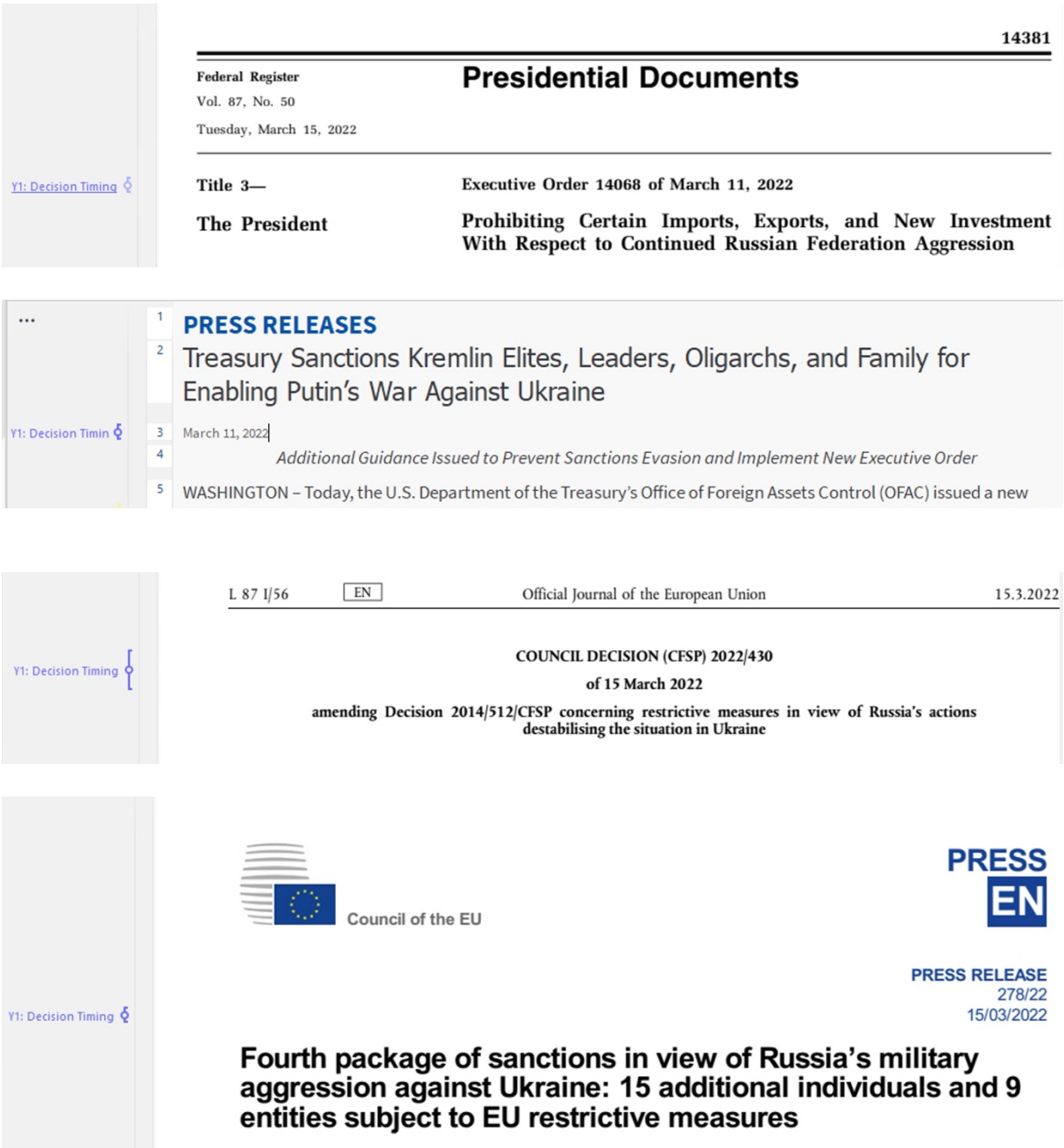
- The accusations against Russia are general ("war crimes," "illegal invasion") without reference to a specific event, specifically after February 24, 2022, as every document refers to the illegal invasion breaching international law. Thus, a crisis logic has to be found in the documents for it to be coded
- The language is normative but not framed as a turning point
- The document describes events but does not link them causally to political decisions; instead, it provides general background descriptions without "shock" framing.

Anchor examples:

- "This crisis is a serious threat to the rules-based international order, with ramifications well beyond Europe. There is no justification for changing internationally recognized borders by force. This has fundamentally changed the Euro-Atlantic security situation. President Putin has reintroduced war to the European continent. He has put himself on the wrong side of history" (G7 Statement of February 24, 2022, p. 1)
- "Allies utterly condemned the horrific murders of civilians we have seen in Bucha and other places recently liberated from Russian control," NATO Secretary General Jens Stoltenberg said (NATO Statement on April 8, 2022, p. 2)
- "The United States is united with our allies and partners to ensure the Government of Russia pays a severe price for causing such death and destruction in Ukraine, and particularly for the horrors in Bucha and elsewhere." (Blinken Press Statement of April 6, 2022, Pos. 5)

Appendix B: Examples of Coding in MAXQDA

Example for temporal coherence



Application of the coding scheme: Following the coding scheme in Appendix A, a Score of 1 is assigned for announcements occurring 3 to 14 days apart, reflecting asymmetrical sequencing and moderate temporal alignment. The timing gap between March 11, 2022, and March 15, 2022, is four days, thus falling into that category.

Note for coding substantive coherence: The overall score for substantive coherence is calculated by comparing EU/ U.S. measures per sector, first by counting sectoral overlap and then by comparing the instruments applied. This section demonstrates the applicability of the coding scheme and does not provide a complete case-level analysis.

Example for substantive coherence: Finance

(1) For new debt or new equity of entities listed in Annex 1, or their property or interests in property, all transactions in, provision of financing for, and other dealings in new debt of longer than 14 days maturity or new equity where such new debt or new equity is issued on or after 12:01 a.m. eastern daylight time on March 26, 2022; and

Directive 3 under E.O. 14024 of February 24, 2022

'*Article 1*

1. It shall be prohibited to directly or indirectly purchase, sell, provide investment services for or assistance in the issuance of, or any other dealing with bonds, equity, or similar financial instruments with a maturity exceeding 90 days, issued after 1 August 2014 to 12 September 2014, or with a maturity exceeding 30 days, issued after 12 September 2014 to 12 April 2022 or any transferable securities and money market instruments issued after 12 April 2022 by:

Council Decision 2022/327 of February 25, 2022

Application of the coding scheme: Both actors targeted the finance sector, applying the same instruments (blocking sanctions, asset freezes, and prohibitions on transactions or financing). High substantive coherence is present in this sector.

Example for substantive coherence: Energy

Pursuant to sections 1(a)(ii), 1(b), and 5 of Executive Order (E.O.) 14071 of April 6, 2022 ("Prohibiting New Investment in and Certain Services to the Russian Federation in Response to Continued Russian Federation Aggression"), the Secretary of the Treasury, in consultation with the Secretary of State, hereby determines that the prohibitions in section 1(a)(ii) of E.O. 14071 shall apply to the following categories of services as they relate to the maritime transport of crude oil of Russian Federation origin (collectively, the "Covered Services"):

- Trading/commodities brokering;
- Financing;
- Shipping;
- Insurance, including reinsurance and protection and indemnity;
- Flagging; and
- Customs brokering.

Determination Pursuant to Section 1(a)(ii) of E.O. 14071 of November 21, 2022

(a) in paragraph 7, the following sub-paragraphs are added:

'As from 5 February 2023, it shall be prohibited to transfer or transport petroleum products falling under CN 2710 which are obtained from crude oil imported on the basis of a derogation granted by the Bulgarian competent authority under paragraph 5, to other Member States or to third countries, or to sell such petroleum products to purchasers in other Member States or in third countries.

Council Regulation 2022/2474 of December 16, 2022

Application of the coding scheme: The Determination Pursuant to Section 1(a)(ii) of E.O. 14071 restricts the provision of services related to the maritime transport of Russian oil, while Council Regulation 2022/2474 further tightens the EU's energy embargo. Both measures address the Russian energy exports and use similar measures (bans/ embargoes and service prohibitions).

Example for substantive coherence: Defense and Industry

technologies and other items that it needs to sustain its aggressive military capabilities. These controls primarily target Russia's defense, aerospace, and maritime sectors and will cut off Russia's access to vital technological inputs, atrophy key sectors of its industrial base, and undercut its strategic ambitions to exert influence on the world stage. BIS's actions, along with those of the Department of the Treasury, are part of the Biden-Harris Administration's swift

BIS Press Release of February 24, 2022

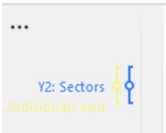
'*Article 3a*

1. It shall be prohibited to sell, supply, transfer or export, directly or indirectly, goods and technology which might contribute to Russia's military and technological enhancement, or the development of the defence and security sector, whether or not originating in the Union, to any natural or legal person, entity or body in Russia or for use in Russia.

Council Decision 2022/327 of February 25, 2022

Application of the coding scheme: Both measures targeted the same sector and employed the same instruments, including export bans and enhanced licensing requirements.

Example for substantive coherence: Individuals and Elites



Targeted restrictive measures

Within the existing framework for sanctions, the EU will **extend restrictive measures to cover all the 351 members of the Russian State Duma** who voted on 15 February in favour of the appeal to President Putin to recognise the independence of the self-proclaimed Donetsk and Luhansk "republics".

Press Release 151/22 of February 23, 2022

6 WASHINGTON – Today, the United States is taking action to respond to President Vladimir Putin's decision to recognize the so-called Donetsk and Luhansk People's Republics (DNR and LNR) as "independent" states and to deploy troops to these regions by sanctioning two major Russian state-owned financial institutions, imposing additional restrictions on Russian sovereign debt, and sanctioning five Kremlin-connected elites. This action from the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) builds on yesterday's Executive Order imposing severe restrictions on economic activity with the DNR and LNR regions of Ukraine.

OFAC Press Release of February 22, 2022

Application of the coding scheme: As one of the most challenging categories to assess, this section constitutes a sectoral overlap that contributes to substantive coherence, despite the exact set of targeted persons appearing to diverge. Without referring to the sanctioning lists, the absolute overlap and quantitative depth cannot be determined; this limitation is further addressed in the conclusion of this thesis.

Example for substantive coherence: Trade and Export

in consultation with the Secretary of State and the Secretary of Commerce;
(ii) the exportation, reexportation, sale, or supply, directly or indirectly, from the United States, or by a United States person, wherever located, of luxury goods, and any other items as may be determined by the Secretary of Commerce, in consultation with the Secretary of State and the Secretary of the Treasury, to any person located in the Russian Federation;

E.O. 14068 of March 11, 2022

Article 3h

1. It shall be prohibited to sell, supply, transfer or export, directly or indirectly, luxury goods as listed in Annex XVIII, to any natural or legal person, entity or body in Russia or for use in Russia.

Council Regulation 2022/428 of March 15, 2022

Application of the coding scheme: Both measures are directed against Russian trade flows and use the same instruments by prohibiting the import and export of luxury goods.

Example for substantive coherence: Transport and Logistics

technologies and other items that it needs to sustain its aggressive military capabilities. These controls primarily target Russia's defense, aerospace, and maritime sectors and will cut off Russia's access to vital technological inputs, atrophy key sectors of its industrial base, and undercut its strategic ambitions to exert influence on the world stage. BIS's actions, along with

BIS Release of February 24, 2022

Article 4d

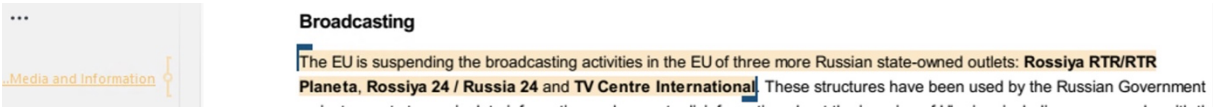
1. It shall be prohibited to sell, supply, transfer or export, directly or indirectly, goods and technology suited for use in aviation or the space industry, whether or not originating in the Union, to any natural or legal person, entity or body in Russia or for use in Russia.

Council Decision 2022/327 of February 25, 2022

Application of the coding scheme: The instruments are complementary rather than identical, as the concrete legal instruments differ (export-licensing restrictions versus airspace and landing bans). Nonetheless, both measures constrain Russia's ability to use Western aviation infrastructure. Thus, both measures intervene in the transport and logistics domain but from different angles.

Example for substantive coherence: Media and Information

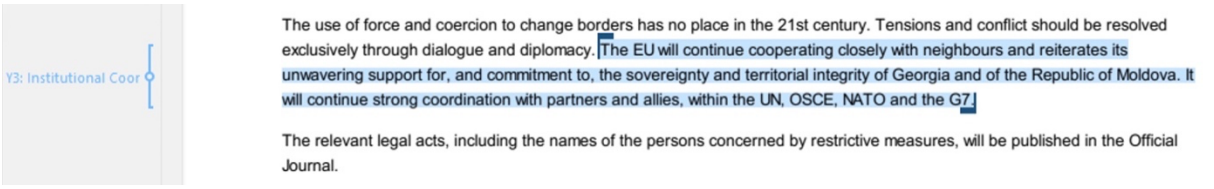
OFAC Press Release May 8, 2022



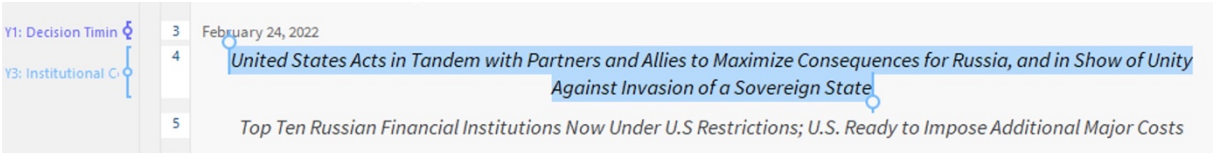
Press Release 515/22 of June 6, 2022

Application of the coding scheme: The specific institutions listed differ, resulting in varying institutional coverage. Nonetheless, both measures target the same sector, Russian state-controlled broadcast media, and employ closely related instruments (restrictions on broadcasting, distribution, and associated services).

Example for communicative coherence



EU Press Release 176/22 of February 25, 2022



OFAC Press release of February 24, 2022

Application of the coding scheme: While the EU press release directly mentions the UN, OSCE, NATO, and the G7, the U.S. remains vague by simply referring to partners and allies. Following the coding scheme, it is sufficient for one actor to explicitly mention concrete multilateral frameworks for high communicative coherence to be coded. Thus, a score of 2/2 is justified in this case.

Example for X1: Economic ties

16. In this respect, we agreed to phase out our dependency on Russian gas, oil and coal imports as soon as possible, in particular by:

a) accelerating the reduction of our overall reliance on fossil fuels, taking into account national circumstances and Member States' choices of their energy mix;

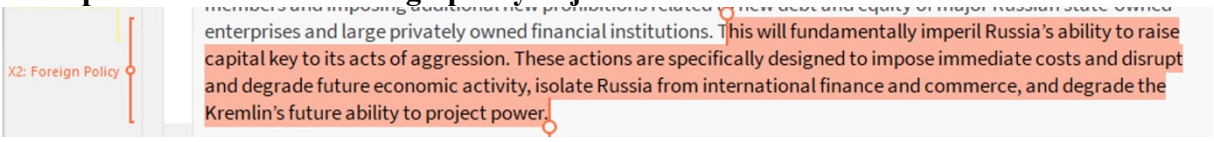
b) diversifying our supplies and routes including through the use of LNG and the development of biogas;

c) further developing a hydrogen market for Europe;

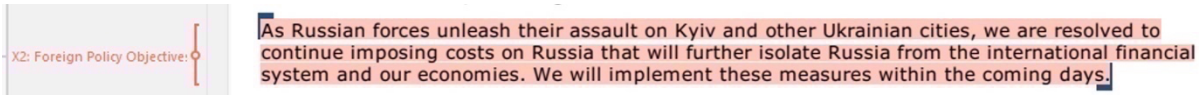
Versailles Declaration, March 11, 2022

Application of the coding scheme: The document explicitly acknowledges the EU's dependency on Russia and emphasizes the need to reduce this dependency over time. A specific dependence on Russian energy is mentioned in the context of sanctions, justifying code '1' for economic ties in this document.

Example for X2: Shared foreign policy objectives



OFAC Press Release of February 24, 2022, Pos. 7



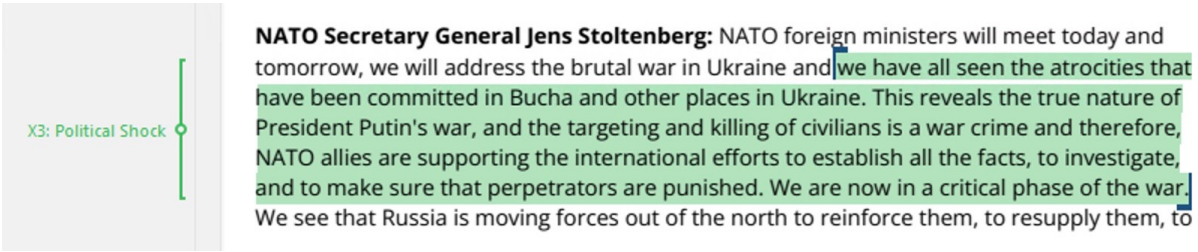
EEAS Joint Statement, February 26, 2022, p.1

Application of the coding scheme: Both actors articulate the same core objective- raising economic costs and constraining Russia's capacity to wage war. Thus, the code of '1' is justified for shared foreign policy objectives in this case.

Example for X3: Political shock

1. We, the G7 Foreign Ministers of Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States of America, and the High Representative of the European Union, condemn in the strongest terms the atrocities committed by the Russian armed forces in Bucha and a number of other Ukrainian towns. Haunting images of civilian deaths, victims of torture, and apparent executions, as well as reports of sexual violence and destruction of civilian infrastructure show the true face of Russia's brutal war of aggression against Ukraine and its people. The massacres in the town of Bucha and other Ukrainian towns will be inscribed in the list of atrocities and severe violations of international law, including international humanitarian law and human rights, committed by the aggressor on Ukrainian soil.

G7 Statement of April 7, 2022, p. 1



NATO Statement of April 6, 2022, p. 1

Application of the coding scheme: Both statements directly refer to the atrocities committed in Bucha, describing them as "heinous" crimes and a turning point that requires action. This explicit distinction as a shock moment and the linkage to further restrictive measures satisfied the coding rules for X3, thus accounting for the presence of X3.

Appendix C: Overview of EU and U.S. Sanction Measures

This appendix presents a table of all EU and U.S. sanctions measures implemented from February 22, 2022, to February 25, 2023. They are clustered into sectors for better comparability, where '9' indicates the absence of a measure; '-' in the relation column signals that no direct comparison is possible (e.g., because a measure was already adopted in an earlier episode or a corresponding measure is missing).

Sector	EU Measure	U.S. Measure	Relation
Finance/ Banking	Restrictions of Russian sovereign debt, state financing, and banks involved in Donbass financing	Correspondent-account restriction, new debt/ equity ban for major banks	Similar sector, different depth of measures making them complementary rather than identical
Energy	9	9	-
Trade & Exports	Limited trade to LPR and DPR	9 Already limited one day before under E.O. 14065	-
Defense & Industry	9	9	-
Transport & Logistics	9	9	-
Individuals & Elites	Travel bans/ Asset freezes on Duma members	OFAC designation of Duma members	Overlap
Media & Information	9	9	-

Finance/ Banking	Ban on access to EU capital markets; deposit limits > 100.000 €	Directives 2 & 3 Full asset freeze + correspondent-account blocks; new debt/ equity issuance	Overlap
Energy	Ban on export of oil-refining tech	Financial sanctions on major energy SOEs	Complementary instruments
Trade & Exports	Blanket ban on dual-use goods	BIS export controls on technology	Overlap
Defense & Industry	Export Ban on military-use items	Same export ban, e.g. on semiconductors, computers, telecommunications	Overlap
Transport & Logistics	Export controls targeting aerospace, maritime sector	Export controls targeting aerospace, maritime sector	Overlap
Individuals & Elites	Listing of Putin, Lavrov, oligarchs	OFAC designation for same figures	Overlap
Media & Information	9	9	-
Finance/ Banking	Further transaction ban on CBR	Transaction ban on CBR, FinMin, NWF	Overlap but more comprehensive U.S. measures
Energy	9	9	-
Trade & Exports	9	9	-
Defense & Industry	9	9	-
Transport & Logistics	Ban on Russian aircraft access in EU airspace	9	-
Individuals & Elites	Adding 26 new persons and entities to the sanctions list	RDIF, CEO Kirill Dmitriev, management companies	Complementary rather than identical
Media & Information	9	9	-
Finance/ Banking	Prohibition of new transactions and joint ventures Ban of EU credit-rating agencies from rating Russian entities	Prohibition any new investments in Russia's economy New prohibitions on dollar transactions	Overlap
Energy	Financial restriction on new grants and loans for entities operating in the energy sector	Ban on any new investments in Russia's energy sector; Import ban on Russian products, including crude oil,	Overlap in financial restriction but U.S. unilateral measure in import ban

		petroleum, petroleum fuels, oils, and products	
Trade & Exports	Ban on the export of luxury goods	Ban on the export of luxury goods and on the import of fish, seafood, alcohol, and diamonds from Russia	Complementary measures as the EU does not target all the products the U.S. is targeting
Defense & Industry	Import ban on iron and steel	9	-
Transport & Logistics	Designation of the aviation, military, shipbuilding, and machine-building sectors. Dual use targeted as well.	9 Adds these sectors later in its Determination on 31 March 2022 but for this sanction episode 9	-
Individuals & Elites	key oligarchs	key oligarchs, malign actors, individuals with financial resources to purchase U.S.-origin luxury goods	More comprehensive U.S. measures make instruments complementary
Media & Information	Targeting media figures	Targeting media spokesperson	Targeting the disinformation apparatus but entity lists might differ
Finance/ Banking	Full transaction ban on Russian banks Tightening of EU crypto and security regulations Prohibition of trusts and advisory services to Russian entities.	Full blocking against Sberbank, Alfa-Bank + 42 subsidiaries Prohibition on any new investments	Overlap
Energy	Coal and other fossil fuels import ban	9 Already banned under E.O. 14068	-
Trade & Exports	Import ban on new goods (wood, cement, fertilizers etc.)	9 Already banned under E.O. 14068	-
Defense & Industry	9	9	-
Transport & Logistics	Access restriction for vessels into EU territory	Targeting five vessels	Overlap
Individuals & Elites	Key oligarchs, Businesspeople, Kremlin officials,	Key oligarchs, Businesspeople, Kremlin officials,	Political alignment in sanctioned individuals

	Propagandists, family members of Putin and Lavrov, Russian Security Council Members	Propagandists, family members of Putin and Lavrov, Russian Security Council Members	
Media & Information	9	9	-
Finance/ Banking	Prohibition of consulting, accounting or PR services to Russia Prohibitions on SWIFT- provisions to Sberbank, VTB, Credit Bank Moscow, Russian Agricultural Bank	Prohibition of consulting, accounting or PR services to Russia Banks already banned under E.O. 14024 since April 2022	Overlap in instruments concerning consulting
Energy	Prohibition of purchase and import of crude oil and petroleum products	9 Oil already banned in March 2022	-
Trade & Exports	9	9	-
Defense & Industry	Import ban on chemicals vital for defense and security	Targeting manufacturer Promtekhnologiya	No overlap
Transport & Logistics	Ban on EU-flagged vessels transporting Russian oil	Targeting aerospace sector	No overlap
Individuals & Elites	Individuals responsible for the atrocities	Elites who evade sanctions, executive board members of Sberbank; 27 members of GPB's Board of Directors	No overlap
Media & Information	Ban on broadcast channels Targeting SOEs	Targeting television stations Targeting SOEs	Overlap
Finance/ Banking	Transaction ban on Russian Maritime Register	Designation of National Payment Card System	Same logic but different institutions targeted
Energy	Export ban on coal and other products	9 Already banned by the U.S.	-
Trade & Exports	9	9	-
Defense & Industry	Prohibition of vital goods for the defense sector	Targeting of Wagner officials Prohibitions to quantum computing	Different targets

	Designation of defense companies		
Transport & Logistics	9	9	-
Individuals & Elites	Propagandists, Representatives of the defense sector, individuals part of 'illegal sham referenda'[4]	Financial technocrats, Russian Officials, Neo-Nazi Militia	Different targets
Media & Information	9	9	-
Finance/ Banking	Russian Regional Development Bank on sanction list Extending service prohibitions in consulting, tax, etc.	Enforcing price cap on compliance; service prohibitions shall apply for trading and financing	Partial overlap
Energy	Crude oil ban	Price cap on crude oil	Full overlap
Trade & Exports	Prohibition of petroleum products under CN 2710	9	-
Defense & Industry	Targeted entities in the defense sector Dual-use and defense complex designated	9	-
Transport & Logistics	9	Extension of prohibitions to the maritime transport of crude oil	-
Individuals & Elites	New Military and government officials	9	-
Media & Information	Propagandists Media Companies	9	-
Finance/ Banking	Entities critical to Russia's financial infrastructure, mostly banks	Targeting dozen banks, wealth management-related entities	Overlap
Energy	Ban on gas storage capacity	9	-
Trade & Exports	Export controls mostly on dual use goods and technology	Export controls	Overlap
Defense & Industry	Iranian entities, Russian military	Import and export restrictions on	

[4] in the regions of Donetsk, Kherson, Luhansk, and Zaporizhzhia

	personnel, Wagner group, defense companies	technology equipment Metals and mining sector	
Transport & Logistics	Designation of entities operating in the aerospace sector	Tightening of notification rules for Russian aircrafts	Partial overlap
Individuals & Elites	Key political decision makers, military and defense sector individuals Those responsible for the deportation of children	individuals responsible for sanction evasion, arms trafficking, and illicit finance	No overlap
Media & Information	Propagandists and media organizations	9	-

The final assessment of substantive coherence reveals varying sectoral overlap and the application of different instruments within the first year of the war of aggression. Export controls in various areas dominate, aligning with findings in the literature about this instrument of economic statecraft (Immenkamp, 2024). Although a total overlap of sanction measures seems unlikely, the empirical evidence of case two shows an unprecedented alignment in sanction measures. Generally and qualitatively speaking, U.S. measures are more comprehensive than those of the EU and have taken effect earlier, for example, the oil ban. Nevertheless, in some sanction episodes, the EU as well seemed to take some unilateral measures where no corresponding U.S. measure could be identified in the available primary documents.

Appendix D: Empirical Evidence Underlying Outcome Variation

Case 1- Detailed empirical analysis:

On February 22, 2022, two days before the full-scale invasion, Russian President Vladimir Putin recognized the non-government-controlled areas of the Donetsk and Luhansk oblasts of Ukraine as independent entities, sparking the first round of sanctions. The EU adopted Council Decision (CFSP) 2022/264 of 23 February 2022, amending Decision 2014/512, and Council Regulation (EU) 2022/262 of 23 February 2022, amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. On the same day, the Council also issued Press Release 151/22. U.S. measures included a Determination Pursuant to Section 1(a)(i) of Executive Order 14024, Directive 1A under Executive Order 14024, as well as an official Press Release by the OFAC. These measures were announced and took effect on February 22, 2022. *Decision Timing*, the first dimension of

the DV, captures the simultaneity of EU and U.S. sanction adoption or public communication about sanction measures. In this case, the timing gap was only 24 hours. The EU and the U.S. communicated nearly perfectly in alignment. Following the coding scheme's logic, this leads to a score of 2/2 for temporal coherence.

Targeted Sectors and employed measures assess the degree of overlap in sector and instruments of EU and U.S. sanctions. The following part is clustered into sectors for better understanding:

Finance: Both actors primarily impose financial and sovereign debt restrictions. Article 1a (b) of Council Decision 2022/264 and Article 5a (b) of Council Regulation 2022/262 target Russia's Central Bank (CBR), while the U.S. blocks the Corporation Bank for Development and Foreign Economic Affairs Vnesheconombank (VEB) and Promsvyazbank Public Joint Stock Company (PSB), as well as 42 subsidiaries under E.O. 14024 for financing defense and foreign projects. Regulation 2022/262 Article 5a prohibits all credit and dealing in transferable securities or money-market instruments issued after 9 March 2022 by: (a) Russia and its government, (b) the CBR. New loans made after 23 February 2022 are also prohibited, thereby cutting access to EU capital markets (Council Regulation (EU) 2022/262, Article 5a). Directive 1A point 1 and 3 prohibit U.S. financial institutions from participating in primary and secondary markets for bonds issued by CBR, the Ministry of Finance (MinFin), or the National Wealth Fund (NWF) after March 1, 2022, (2) as well as lending denominated funds. The Determination Pursuant to Section 1(a)(i) extends E.O. 14024 to the "financial services sector of the Russian Federation economy". Although the same sector is targeted and similar instruments are employed, there is a difference in comprehensiveness, as U.S. measures are more comprehensive, for example, by targeting five vessels owned by PSB. All five vessels were designated under E.O. 14024 as blocked property due to their connection to PSB Lizing OOO.

Individuals and Elites: EU measures target individuals and elites, including 351 Duma members and 27 high-profile individuals and entities (officials, military personnel, officers, and oligarchs). They are exposed to asset freezes and travel bans (Council of the European Union, 2022i). The U.S. designated five Kremlin-connected elites, as well as Putin's inner circle, including Petr Fradkov and Aleksandr Bortnikov, whose property or interest in property is blocked (U.S. Department of the Treasury, 2022f). Without comparing detailed sanction lists, political elites and individuals close to political decision-makers are targeted, marking an overlap in measures.

Trade and Export: The EU imposed import and export bans on specific goods and technologies from the non-government-controlled areas of the Donetsk People's Republic (DPR) and Luhansk People's Republic (LPR) (Council of the European Union, 2022i, p. 1). No

corresponding U.S. measure could be identified in U.S. primary documents, as E.O. 14065 already issued a total ban on investment, trade, and new activity in DPR/LPR regions one day prior to EU measures. E.O. 14065 is not part of the analysis per se.

First, this category involves checking whether the EU and U.S. measures are directed at the same sectors. In this case, individuals and the financial sector were targeted. A sum of two key areas is targeted. Second, the comprehensiveness of applied instruments must be determined if judgeable. An overlap can be found in targeting individuals, while instruments directed against the finance sector vary in scope. Following the coding scheme, the medium score (1) is coded if there is an overlap in three sectors or fewer, and complementary rather than identical instruments are used. This applies in this specific case. Thus, a score of 1/2 or substantive coherence is justified.

Framing of Institutional Coordination examines whether the U.S. and the EU jointly frame or legitimize sanction efforts. Decision 2022/264 (3) refers to "restrictive measures in coordination with partners", while the U.S. OFAC press release from February 22, 2022, mentions measures "taken in coordination with our partners and allies" (U.S. Department of the Treasury, 2022f, Pos. 8). Following the coding manual, the modest score is assigned if a vague framing of coordination can be identified, e.g., references to allies or partners. Thus, a score of 1/2 for communicative coherence is justified.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 4/6.

Case 2- Detailed empirical analysis:

On February 24, 2022, Russia invaded Ukraine, sparking the occasion for another round of sanction decisions from both actors. The U.S. reacted instantly on February 24, 2022, with Directives 2 and 3 under E.O. 14024. The Treasury Department and the Department of Commerce issued immediate press releases. The EU, after a nighttime Council session, adopted Regulation 2022/328 of February 25, 2022, amending Regulation (EU) No 833/2014, as well as Decision (CFSP) 2022/ 327 of February 25, 2022, amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. The Press Release 176/22 was also published by the Council on the same day. *Decision Timing*, was only 24 hours. The EU and the U.S. communicated nearly perfectly in alignment. Following the coding scheme's logic, this leads to a score of 2/2 for temporal coherence.

Targeted Sectors and employed measures assess the degree of overlap in sector and instruments of EU and U.S. sanctions. The following part is clustered into sectors for better understanding:

Finance: In the financial sector, EU measures are being expanded, effectively cutting Russian access to the most essential capital markets. Approximately 70% of the Russian banking market is targeted, which limits financial inflows from Russia to the EU (Council of the European Union, 2022h, p. 1). However, these institutions' assets are not yet fully blocked, enabling them to operate partially in SWIFT. Furthermore, Article 1b (1) of Decision 2022/327 prohibits the acceptance of deposits exceeding €100,000 from Russian nationals. Additionally, there is a ban on EU listing of Russian state-owned entities (Council of the European Union, 2022h, p. 1). Contrary, Directive 2 blocks Sberbank's correspondent accounts, while Directive 3 bans new debt and equity issuance for 13 state-owned enterprises (SOE), including Sberbank, Vneschtorgbank (VTB), Gazprom, and Transneft. The US Treasury also freezes all of VTB's assets. Hence, the same sector is targeted with both actors taking severe steps to hit Russia's financial architecture.

Individuals and Elites: Both senders target individuals heavily, namely families close to Putin, financial sector elites, and political elites (Council of the European Union, 2022h, pp. 1-2; U.S. Department of Commerce, 2022a). Thus, overlap in this sector is achieved.

Defense and Industry: The defense sector is targeted equally with Article 2a point 1 of Regulation 2022/328, as well as corresponding U.S. measures, which introduce an export ban on essential goods for the military and industry, such as semiconductors, computers, telecommunications, etc. (Council of the European Union, 2022h, p.1; U.S. Department of Commerce, 2022a, pp. 1-2). The U.S. also targets same goods, resulting in overlapping measures.

Trade and Exports: Article 2, point 1 of Regulation 2022/328 and Article 3, point 1 of Decision 2022/ 327 introduce a blanket ban on exports of all dual-use goods and technologies. U.S. measures also restrict Russia's access to technology by introducing export controls (U.S. Department of Commerce, 2022a, p.1). The same instruments are applied to severely hit Russia.

Transport and Logistics: Article 3c, point 1 of Regulation 2022/328 and Article 4d, point 1 of Decision 2022/ 327 introduce a ban on the sale, export, and trade of all aviation vehicles, while not only the aerospace sector is supposed to be targeted, but all forms of transportation, e.g., maritime transport as well. The BIS also introduces export controls that cover the aerospace and maritime sector (U.S. Department of Commerce, 2022a, p. 1). Measures are fully overlapping in this sector as well.

Energy: Additionally, both actors target the energy sector, but less intensively than other sectors. Article 4c, point 1 of Decision 2022/327 prohibits any exchange of technology suited for oil refining. In Annex I of Directive 3 under E.O. 14024, the U.S. issued financial sanctions on

major energy SOEs such as Gazprom, hence still indirectly targeting the energy sector by applying different instruments. EU and U.S. instruments are rather complementary than overlapping. First, six key areas- finance, trade and export, defense and industry, transport and logistics, individuals and elites, and energy- are targeted. Second, the comprehensiveness of applied instruments must be determined. An overlap can be found in five sectors: finance, trade and export, defense and industry, transport and logistics, and individuals and elites, while measures in the energy sector are rather complementary. Following the coding scheme, the highest score is only coded if there is an overlap in at least three sectors, and the instruments are the same. This applies in this specific case. Thus, a score of 2/2 or substantive coherence is justified.

Framing of Institutional Coordination examines whether the U.S. and the EU jointly frame or legitimize sanction efforts. Institutional Coordination is mentioned ten times in official documents, equally from both sides. The U.S. mainly refers to "partners" and "allies," but also mentions concrete cooperation "among the United States, the European Union (EU), Japan, Australia, the United Kingdom, Canada, and New Zealand" once (U.S. Department of Commerce, 2022a, p. 1). The EU "will continue strong coordination with partners and allies, within the UN, OSCE, NATO, and the G7" (Council of the European Union, 2022h, p.2). According to the coding manual, the highest score is assigned when both actors refer to specific alliances or coordination within an established framework, such as the G7. Thus, a score of 2/2 for communicative coherence is justified.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 6/6.

Case 3- Detailed empirical analysis:

The third round of restrictive measures took effect on February 28, 2022. On the same day, the EU adopted Council Decision (CFSP) 2022/335, amending Decision 2014/512/CFSP, as well as Council Regulation (EU) 2022/334, amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. Two press Releases are public: 188/22 and 189/22. The U.S. issued Directive 4 under E.O. 14024, and the Treasury Department published a press release on the same day. *Decision Timing* - the public communication about sanctions- occurred on the exact same day, thus justifying a score of 2/2 for this dimension.

For *targeted sectors and employed measures,* the following measures were taken:

Finance: Article 1a, point 4 of Decision 2022/335 and Article 3e, point 3 and point 4 of Regulation 2022/334 further ban any transactions with the CBR. The U.S., in its Directive 4 under E.O. 14024, targets not only the CBR but also the NWF and the MinFin. Hence, an overlap can be identified in the finance sector, with U.S. measures being more comprehensive.
Individuals and Elites: Another round of individual sanctions is introduced with the EU adding 26 persons and one entity, as well as more travel bans (Council of the European Union, 2022g, p.1), and the U.S. focusing on the Russian Direct Investment Fund (RDIF) and its CEO Kirill Dmitriev, as well as related management companies (U.S. Department of the Treasury, 2022a). Without analyzing all entity lists, measures seem rather complementary, given the information in the body paragraphs of primary sources.
Transport and Logistics: Article 4e, point 1 of Regulation 2022/334 targets the aerospace sector by denying access to European Union airspace, while no concrete U.S. measures can be found in primary documents.
Taken together, the finance sector, as well as individuals and elites, are primarily affected by measures from both sides, while the EU also targets the transport and logistics sectors. Applied instruments are rather complementary than identical. Following the coding scheme, the medium score is coded if there is an overlap in three sectors or fewer, and complementary rather than identical instruments are used. This applies specifically in this case, as two sectors are targeted, but the measures remain complementary. Thus, a score of 1/2 or substantive coherence is justified.
Framing of Institutional Coordination examines whether the U.S. and the EU jointly frame, coordinate, or legitimize sanction efforts. Institutional Coordination was mentioned from both sides in four cases. The U.S. remained rather vague by referring to “partners” and “allies” (U.S. Department of the Treasury, 2022a) while the EU clearly refers to “coordination with partners and allies, within the UN, OSCE, NATO and the G7” (Council of the European Union, 2022g, p.1). As referred to in the coding scheme, it is also highly possible that only one actor mentions institutional frameworks; in this specific case, it is assumed that the other actor implicitly agreed to measures solely by virtue of its membership in the framework. Thus, a score of 2/2 for communicative coherence is justified.
Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 5/6.

Case 4- Detailed empirical analysis:

The EU adopted the fourth package of sanctions on 15 March 2022, with its Council Regulation (EU) 2022/428, amending Regulation (EU) No 833/2014, and Council Decision (CFSP) 2022/429, amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. Press Release 278/22 was also published. The U.S. issued E.O. 14066 on March 8, 2022, and E.O. 14068 on March 11, 2022. The Treasury Department and Commerce Department both published a Press Release on March 11, 2022, thus *Decision Timing* varies between four and seven days. Following the coding scheme's logic, a medium score is assigned for timing differences of three to fourteen days. Thus, a score of 1/2 for temporal coherence is justified.

The following sectors were targeted and instruments applied:

Finance: The established financial frameworks, as of February 28, became more nuanced and detailed. E.O. 14068 Section 1 (iii) prohibits any new investments in Russia's economy, while under Section 1 (iv), new prohibitions on dollar transactions are introduced. Article 1aa, point 1(a) of Decision 2022/430 prohibits any new transactions with multiple Russian entities listed in Annex X, while Article 4a, point 1 (c) prohibits any new joint ventures. Additionally, article 5j, points 1 and 2 of Regulation 2022/428, banned EU credit-rating agencies from rating Russian entities as of 15 April 2022. Measures are mainly overlapping in regard to transaction prohibitions.

Individuals and Elites: In the Annex of Decision 2022/429, the list of targeted persons and entities is updated by adding key oligarchs, such as Roman Abramovich and German Khan. The BIS and OFAC Press Releases also mention sanctions against key oligarchs and malign actors, as well as entities that "have the financial resources to purchase U.S.-origin luxury goods" (U.S. Department of Commerce, 2022b, p. 2). Without comparing the sanction lists, measures appear rather complementary. The EU does not refer to buyers of luxury goods, while the U.S. does not refer to the same oligarchs.

Trade and Exports: Article 3h (1) of Regulation 2022/428 includes a ban on the export of luxury goods, further determined in Annex XVII of this Regulation. E.O. 14068 Section 1(ii) takes the exact same measures. Additionally, Section 1a (i) bans the import of fish, seafood, alcohol, and diamonds from Russia, whereas only a few of these items are explicitly targeted by the EU measures. The ban on luxury goods is determined by both, while the U.S. measures are more comprehensive, including goods not mentioned by the EU.

Defense and Industry: Article 3g, point 1 of Regulation 2022/428, and Article 4i, point 1 of Decision 2022/430 impose an import ban on steel and iron. No corresponding U.S. measure could be identified in primary sources.

Transport and Logistics: In Annex I of Regulation 2022/428, the EU sanctions entities in the aviation, military, and dual-use, shipbuilding, and machine-building sectors (Council of the European Union, 2022c, p.1), while the U.S. adds the aviation, military, and dual-use, shipbuilding, and machine-building sectors precisely later on in its Determination on 31 March 2022, which is not part of this analysis.

Energy: Additionally, under Section 1(a) (ii) of E.O. 14066 the U.S. bans any new investments in Russia's energy sector and under section 1 (a) (ii) an import ban on Russian products, including crude oil, petroleum, petroleum fuels, oils, and products of their distillation, liquefied natural gas, coal, and coal products is introduced. Meanwhile, Article 3a, point 1(b), restricts new grants and loans for entities operating in the energy sector. Both actors apply the same financial measures, while the U.S. is the only actor to restrict the import of oil.

Media and Information: The EU sanctions media figures, such as Konstantin Ernst (CEO of Channel One Russia), while the U.S. sanctions spokesperson Peskov (Council of the European Union, 2022c, p. 1). A similar logic applies here, with both actors targeting the disinformation apparatus; however, the names on the lists might differ. An example would be that the EU does not mention Peskov, while the U.S. does not mention Ernst- a sign for further divergences on the lists (U.S. Department of the Treasury, 2022b).

Although five sectors are addressed by both actors, only the financial sector combines overlapping instruments, while the others are mainly complementary. Since fewer than three sectors exhibit overlapping instruments, a high coherence score cannot be justified. Thus, a medium score of 1/2 is assigned for substantive coherence.

Institutional coordination is only mentioned by the U.S., specifically referring to the G7 format and its statement (U.S. Department of the Treasury, 2022b). It is also highly possible that only one actor mentions institutional frameworks; in this specific case, it is assumed that the other actor implicitly agreed to measures solely by virtue of its membership in the framework. Thus, a score of 2/2 for communicative coherence is justified.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 4/6.

Case 5- Detailed empirical analysis:

On April 8, 2022, the EU adopted Council Regulation 2022/576, amending Regulation (EU) No 833/2014, and Council Decision (CFSP) 2022/578, amending Decision 2014/512/CFSP, concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. Press release 365/22 was also published. The U.S. issued E.O. 14071 on April 6, 2022. On the same day, the U.S. Department of the Treasury published its press release. *Decision Timing*, in this case, involves a 48-hour timing gap. Following the coding scheme's logic, the highest score is only coded if measures are announced within 48 hours. Thus, a score of 2/2 for temporal coherence is justified.

Targeted Sectors and employed measures yield the following:

Finance: The Russian financial sector remains a primary target. Both sides now target the same institutions, with Russian banks remaining the main focus. The U.S. imposes full blocking sanctions against Sberbank, Russia's largest state-owned bank, as well as 42 of its subsidiaries, pursuant to E.O. 14024 (U.S. Department of the Treasury, 2022e). Alfa-Bank, Russia's largest private bank, and its subsidiaries, are also targeted, pursuant to E.O. 14024 (U.S. Department of the Treasury, 2022e). Article 5b, point 2, Article 5f, point 1 of Regulation 2022/576, and Article 1b, point 2, Article 1d, point 1 of Decision 2022/578 tighten EU crypto and security regulations. Article 1j (1) of Decision 2022/578 further prohibits trusts and advisory services to Russian entities. U.S. measures, on the other hand, ban "new investments in the Russian Federation" under E.O. 14071 (U.S. Department of the Treasury, 2022e). A full overlap can be determined in this episode.

Individuals and Elites: Strong political alignment is evident in individual sanctions targeting key oligarchs, businesspeople, Kremlin officials, propagandists, and family members of Putin and Lavrov, as well as Russian Security Council Members (U.S. Department of the Treasury, 2022e; Council of the European Union, 2022a, p. 1).

Trade and Exports: Furthermore, the EU bans the import of new goods, such as wood, cement, fertilizers, seafood, and liquor (Council of the European Union, 2022a, p. 1), while some goods were already targeted by U.S. measures in March 2022 under E.O. 14068. No new measures could be identified in primary sources.

Transport and Logistics: Article 3ae, point 1 of Regulation 2022/576 and Article 4ha, point 1 of Decision 2022/578 prohibit Russian vessels from accessing EU territory after 16 April 2022. The U.S. also identifies five vessels registered under the Russian flag, further restricting transportation and logistics (U.S. Department of the Treasury, 2022e). Measures overlap within this sector.

Energy: Under Article 4l, point 1 of Decision 2022/578 and Article 3j, point 1 of Regulation 2022/576, the EU prohibits purchasing, importing, or transferring "directly or indirectly, coal and other solid fossil fuels into the Union if they originate in Russia or are exported from Russia, as from August 2022". It is the first direct EU ban on coal imports. U.S. measures against oil imports were already effective under E.O. 14066, 14068 in early March 2022. The U.S. is ahead in banning gas and oil, while the EU slowly dismantles Russian energy revenue.

In finance, individuals and elites, as well as transport and logistics, often overlap in their use of instruments. Following the coding scheme, the highest score is only coded if there is an overlap in at least three sectors, and the instruments are the same. This applies specifically in this case. Thus, a score of 2/2 or substantive coherence is justified.

As for the mention of institutional coordination, only the OFAC Press Release referred to Biden's E.O.s 14066 and 14068, which "are consistent with commitments made by the G7 leaders to ensure that our citizens are not underwriting Putin's war" (U.S. Department of the Treasury, 2022e). In this specific case, it is assumed that the other actor- here the EU- implicitly agreed to measures solely by virtue of its membership in the framework. Thus, a score of 2/2 for communicative coherence is justified.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 6/6.

Case 6- Detailed empirical analysis:

On June 3, 2022, the EU adopted Council Decision (CFSP) 2022/884, amending Decision 2014/512/CFSP, and Council Regulation (EU) 2022/879, amending Regulation (EU) No 833/2014, concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. Press Release 515/22 was also published. The U.S. already issued a determination pursuant to section 1(a)(ii) of E.O. 14071 on May 8, 2022. It became effective on June 7, 2022. A press release was published on May 8, 2022, by the Treasury Department. In this case, the timing gap is almost four weeks. Following the coding scheme's logic, a low score is assigned for delays exceeding two weeks. Thus, a score of 0/2 for temporal coherence is justified.

The following can be said for *targeted sectors and employed measures:*

Finance: Annex VIII of Decision 2022/884 and Annex XIV of Regulation 2022/879 extend EU prohibitions on the provision of specialized financial messaging services (SWIFT) to Sberbank, VTB, Credit Bank of Moscow, and Russian Agricultural Bank. These banks were already blocked under E.O. 14024 since April 2022. The U.S. adds the board members of the two most important Russian banks. Article 1k, point 1 of Decision 2022/884 and Article 5n, point 1

prohibit consulting, accounting, or PR services to Russia. The same is prohibited by Determination Pursuant to E.O. 14071; thus, the same financial instruments are employed.

Individuals and Elites: Individuals are heavily targeted again, specifically those "responsible for the atrocities committed by Russian troops in Bucha and Mariupol" (Press Release 515/22, p. 2). OFAC targets Russian elites who evade sanctions. (U.S. Department of the Treasury, 2022g). Furthermore, executive board members of Sberbank, pursuant to E.O. 14024, and 27 members of GPB's Board of Directors are targeted (U.S. Department of the Treasury, 2022g). Without comparing the sanction lists, there does not seem to be a clear overlap in targeting individuals.

Defense and Industry: The Russian manufacturer of weapons and munitions, Promtekhnologiya, is targeted (U.S. Department of the Treasury, 2022g), while Article 3ae, point 5(a) includes certain chemicals listed in Annex XXIV, which is part of the import ban targeting vital sectors for the defense and security sector.

Transport and Logistics: Article 3n, point 1 of Regulation 2022/879, bans EU-flagged vessels transporting Russian oil, while the US specifically targets Russia's aerospace Sector (U.S. Department of the Treasury, 2022g). No overlap can be found here.

Energy: Article 40 of Decision 2022/884, and Article 3m, point 1 of Regulation 2022/879, introduce a partial oil embargo by prohibiting the purchase and import of crude oil and petroleum products from Russia, following a six-month phase-out for crude and an eight-month phase-out for refined products. Following Article 3m, point 3 (d) pipeline exemption exists unless decided otherwise by the Council. The U.S. already banned oil and gas imports in March 2022. No new measures are identified in primary sources.

Media and Information: Article 2f, point 3 of Regulation 2022/879 bans broadcast channels such as Rossiya RTR/RTR Planeta, Rossiya 24/Russia 24, and TV Centre International. The comprehensive listing can be found in Annex XV. The U.S. targets three SO television stations, Joint Stock Company Channel One Russia, Television Station Russia-1, and Joint Stock Company NTV Broadcasting Company (U.S. Department of the Treasury, 2022g). Both target SOEs also. In the media sector, instruments overlap.

In total, five sectors are targeted by both actors, while the EU targets energy unilaterally, following measures already implemented by the U.S. Only in the finance and media sectors do measures overlap, while both actors follow different approaches in transport and logistics, and slightly different approaches in defense and industry, as well as among individuals and elites. Following the coding scheme, the medium score is coded if there is an overlap in three sectors or fewer, and complementary rather than identical instruments are used. Although two sectors

overlap in their instruments, this is not enough to code the highest score. Differences in the other sectors remain. Thus, a score of 1/2 or substantive coherence is justified.

The U.S. refers to "partners" once (U.S. Department of the Treasury, 2022g). The coding scheme assigns a modest score if a vague framing of coordination can be identified, e.g., references to allies or partners. Thus, a score of 1/2 for communicative coherence is justified.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 2/6.

Case 7- Detailed empirical analysis:

On October 6, 2022, the EU adopted Council Decision (CFSP) 2022/1907, amending Decision 2014/145/CFSP, and Council Regulation (EU) 2022/1904, amending Regulation (EU) No 833/2014, concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. Press Release 817/22 was also published. Within that timeframe, no U.S. measures were announced. But on September 15, 2022, the U.S. issued a determination pursuant to section 1(a)(ii) of E.O. 14071, which came into effect on October 15, 2022, making the content comparable with EU measures[5]. A press release was published on September 15, 2022, by the Treasury Department, providing further explanation of the determination. In this case, the timing gap is almost four weeks. Following the coding scheme's logic, a low score is assigned for delays exceeding two weeks. Thus, a score of 0/2 for temporal coherence is justified.

For *targeted sectors and employed measures,* the following can be said:

Finance: Council Regulation 2022/1904, point 16 mentions a transaction ban on the Russian Maritime Register, while the US designates the National Payment Card System (Mir payment system) to further hit Russia's financial infrastructure (U.S. Department of the Treasury, 2022c). The same anti-evasion logic applies while different institutions are targeted.

Individuals and Elites: EU measures target individuals who were part of the organization of the "illegal sham referenda" in the regions of Donetsk, Kherson, Luhansk, and Zaporizhzhia, as well as propagandists and representatives of the defense sector (Council of the European Union, 2022d). U.S. measures against individuals and elites are comprehensive, targeting financial technocrats, Russian officials involved in the deportations of Ukrainian children, Russian neo-nazi militia fighting in Ukraine, and Russian occupation authorities (U.S. Department of the Treasury, 2022c). Targets seem to be different.

Defense and Industry: Article 2aa, point 1 of Regulation 2022/1904, prohibits the export of goods vital for the defense sector, such as firearms or ammunition. A comprehensive listing can

[5] This is further explained in Appendix A

be found in Annex I. Additionally, seven entities in the defense sector, including Alan Lushnikov, the Deputy Minister of Defense, and several other defense companies, are sanctioned (Council of the European Union, 2022d, p. 1). OFAC targets Wagner officials as well as members of paramilitary groups (U.S. Department of the Treasury, 2022c). Section 1(a)(ii) of E.O. 14071 extends prohibitions to quantum computing.

Energy: Article 3j, point 1 of Regulation 2022/1904, and Annex XXII list coal and other products subject to export bans. Still, new prohibitions are not introduced. A price cap framework is mentioned at the beginning of this Regulation. U.S. documents do not reveal any new measures; therefore, the oil ban remains in place.

In total, both actors adopt measures in three sectors, while the EU targets energy unilaterally, following measures already implemented by the U.S. In targeting the finance sector, the same anti-evasion logic applies, although different institutions are targeted, and individual and elite targets appear to be distinct. Thus, there is some substantive alignment at the sectoral level, but the majority of measures differ in their concrete design and intensity. Following the coding scheme, the medium score is coded if there is an overlap in three sectors or fewer, and complementary rather than identical instruments are used. Differences within the targeted sectors dominate. Thus, a score of 1/2 or substantive coherence is justified.

The U.S. refers to an "international coalition of allies" and "partners" (U.S. Department of the Treasury, 2022c). The EU briefly mentions "international organizations" (Council of the European Union, 2022d, p.2). The coding scheme assigns a modest score if a vague framing of coordination can be identified, e.g., references to allies or partners. Thus, a score of 1/2 for communicative coherence is justified.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 2/6.

Case 8- Detailed empirical analysis:

On December 16, 2022, the EU adopted Council Decision (CFSP) 2022/2478, amending Decision 2014/512/CFSP, and Council Regulation (EU) 2022/2474, amending Regulation (EU) No 833/2014, concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. Press Release 1123/22 was also published. U.S. measures were issued in November 2022 already[6]. Still, they took effect on December 5, 2022, with a determination pursuant to section 1(a)(ii) of E.O. 14071, a determination pursuant to section 1(a)(ii), 1(b), and 5 of E.O. 14071. The OFAC did not publish a press release, but rather a guidance on the

[6] This is further explained in Appendix A

implementation of the price cap policy for crude oil of Russian Federation origin, which is not part of this analysis but is listed for completeness. *Decision Timing* exceeds four weeks. Following the coding scheme's logic, a low score is assigned for delays exceeding two weeks. Thus, a score of 0/2 for temporal coherence is justified.

Targeted Sectors and employed measures yield the following:

Finance: Decision 2022/2478 point 6, and Regulation 2022/2474 point 21 add the SOE Russian Regional Development Bank to the transaction ban list, while extending service prohibitions in areas like tax or consulting. The U.S., on the other hand, focuses on enforcing compliance with price caps. In that sense, Pursuant to sections l(a)(ii), l(b), and 5 of E.O. 14071, service provision shall apply for trading and financing. There is a partial overlap in applied instruments in the financial sector.

Individuals and Elites: The individuals targeted in this sanction round include military and government officials (Council of the European Union, 2022j, p. 1), while no new U.S. list could be found in primary sources.

Defense and Industry: Decision 2022/2478 expands the list of targeted entities in the defense and industrial complex to include qualitative and technological goods. Finally, dual-use and the defense complex are targeted by more aligned sanction measures. No U.S. measures could be identified.

Transport and Logistics: Section I(a) (ii) of E.O. 14071 extends prohibitions to the maritime transport of crude oil of Russian Federation origin. No corresponding EU measure can be identified in primary documents.

Energy: Article 40, point (a) of Decision 2022/2478 confirms the ban on Russian crude imports as of February 5, 2023. Pipeline derogations exist for Bulgaria, Hungary, and Slovakia. The US takes the same measures, with a price cap on crude oil of Russian Federation origin set at $60 per barrel. Pursuant to sections l(a)(ii), l(b), and 5 of E.O. 14071, service provision shall apply for trading, financing, shipping, insurance, and flagging. Fully coordinated measures and identical instruments apply in this sector.

Media and Information: EU measures target individuals responsible for propaganda and disinformation, as well as media holding companies under Russian authorities that contribute to the "propaganda machine" (Council of the European Union, 2022j, p. 1). No new media entities were targeted by U.S. measures in that period.

In total, two sectors are targeted by both actors (finance and energy). The EU targets trade and export, defense and industry, as well as individuals and elites, and the media and information, unilaterally. In contrast, the U.S. introduces unilateral prohibitions in transport and logistics. As

only two sectors are targeted, the medium score is coded. Thus, a score of 1/2 or substantive coherence is justified.

Surprisingly, there is no mention of institutional coordination in the primary documents available for this sanction episode, resulting in a score of 0/2 for communicative coherence.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 1/6.

Case 9- Detailed empirical analysis:

On January 25, 2023, the EU adopted Council Decision (CFSP) 2023/434, amending Decision 2014/512/CFSP, and Council Regulation (EU) 2023/427, amending Regulation (EU) No 833/2014, concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine. Press Release 129/23 was also published. U.S. measures were announced and took effect on February 24, 2023, with a determination pursuant to section 1(a)(i) of E.O. 14024. The OFAC published a press release on February 24, 2023. In this case, the timing gap is 24 hours. Following the coding scheme's logic, the highest score is only coded if measures are announced within 48 hours. Thus, a score of 2/2 for temporal coherence is justified.

Targeted Sectors and employed measures assess the degree of overlap in sector and instruments of EU and U.S. sanctions. The following measures were taken:

Finance: The EU targets entities critical to Russia's financial infrastructure, including Alfa-Bank, Rosbank, Tinkoff Bank, NWF, and the Russian National Reinsurance Company (Council of the European Union, 2023, p. 2). The U.S. also targets a dozen banks, listed in full length in the press release, and wealth management-related entities (U.S. Department of the Treasury, 2023). High institutional overlap is present in this sector.

Individuals and Elites: Key decision makers on the political and institutional levels are targeted, as well as individuals in the Russian military and defense sector and those responsible for the deportation of children (Council of the European Union, 2023, p. 1). OFAC targets individuals accountable for sanction evasion, arms trafficking, and illicit finance (OFAC Press Release, Pos. 9). Targets differ in this sector.

Defense and Industry: Decision 2023/434, point 10, adds 96 entities to Annex IV, including Iranian entities that support Russian technological advancements. Russian military personnel, Wagner group members, and companies manufacturing missiles, drones, and aircraft (Council of the European Union, 2023, p. 1). The U.S. also included firm specifications in the import or export of high-technology equipment essential for Russia's military complex (U.S. Department

of the Treasury, 2023). The metals and mining sector is targeted explicitly by determination pursuant to section 1(a)(i) of E.O. 14024. Thus, there does not seem to be an overlap.

Trade and Export: Article 3, point 1a of Decision 2023/434, prohibits the transit of dual-use goods and technology, as well as the transit of essential components and ammunition referred to in Article 3aa, point 1a of Decision 2023/434. The U.S. imposed further export controls, also making measures identical (U.S. Department of the Treasury, 2023).

Transport and Logistics: OFAC, in its determination pursuant to E.O. 14024, designated entities operating in the aerospace sector, like Joint Stock Company Prepreg Advanced Composite Material. Article 4e, point 5 of the Decision *2*023/434 and Article 3d, point 5 of Regulation 2023/427 tighten notification rules concerning non-scheduled Russian aircraft operating between Russia and the Union. Although the same sector and entity are targeted, different measures are applied.

Energy: Article 1m, point 1 of Decision 2023/434, and Article 5p, point 1 of Regulation 2023/427 introduce a ban on gas storage capacity for Russian nationals or entities to prevent energy weaponization. This measure should strengthen anti-circumvention rules. On the U.S. side, no new measures could be identified. Nevertheless, with the determination in place, the metals and mining sector is targeted, cutting into energy-linked revenue streams, making the measures complementary to those of the U.S. across various sectors.

Media and Information: Organizations such as Rossiya Segodnya and propagandists in the media sector are targeted by EU measures (Council of the European Union, 2023, p. 1). Corresponding U.S. measures could not be identified.

In total, five sectors are targeted by both actors (finance, individuals and elites, defense and industry, trade and export, and transport and logistics). In addition, the EU targets energy, as well as media and information, unilaterally. A high overlap can only be found in finance, trade, and exports. Consequently, in the other sectors, there does not seem to be an identical overlap. Thus, a score of 1/2 or substantive coherence is justified.

Institutional Coordination is mentioned five times in official U.S. documents, with reference to the G7 (U.S. Department of the Treasury, 2023). As only one actor may mention institutional frameworks, in this specific case, it is assumed that the other actor implicitly agreed to measures solely by virtue of its membership in the framework. Thus, a score of 2/2 for communicative coherence is justified.

Transatlantic sanction coherence is determined by summing the individual scores of each dimension of the DV, resulting in an overall score of 5/6.

Appendix E: R Code

```
# ============================
Mapping Variation in the DV
# ============================
install.packages("ggplot2", "tidyverse", "readxl")
library(ggplot2)
library(tidyverse)
library(readxl)

data <- read_excel ("/Users/laurastengl/Desktop/Mapping.xlsx")
data <- data %>%
  mutate (
    Coherence = case_when(
      Score <= 2 ~ "Low coherence (Y0)",
      Score <= 4 ~ "Medium coherence (Y1)",
      TRUE       ~ "High coherence (Y2)“))

ggplot(data, aes(x = Case, y = Score)) +
  annotate ("rect",xmin = 0.5, xmax = 9.5, ymin = 0.5, ymax = 2.5, alpha =
0.05) +
  annotate ("rect",xmin = 0.5, xmax = 9.5, ymin = 2.5, ymax = 4.5, alpha =
0.08) +
  annotate ("rect", xmin = 0.5, xmax = 9.5, ymin = 4.5, ymax = 6.5, alpha =
0.11) +
  geom_line(linewidth = 0.6) +
  geom_point(aes(shape = Coherence), size = 2) +
  scale_x_continuous(breaks = data$Case) +
  scale_y_continuous(breaks = 0:6, limits = c (0, 6)) +
  labs (
    x = "Case",
    y = "Transatlantic sanction coherence index",
    title = "Variation in Transatlantic Sanction Coherence") +
  annotate ("text", x = 9.45, y = 1.5, label = "Low“,  hjust = 1, size = 3)
+
  annotate ("text", x = 9.45, y = 3.5, label = "Medium", hjust = 1, size =
3) +
  annotate ("text", x = 9.45, y = 5.5, label = "High“, hjust = 1, size = 3)
+
  theme_classic(base_size = 12) +
  theme (
    plot.title = element_text(hjust = 0.5, face = "bold"),
    axis.title = element_text(face = "bold"),
    legend.position = "top",
    legend.title = element_blank())
```

```
# ============================
Crisp-Set QCA
# ============================
##Step 1: Install packages and load data##
.libPaths()
install.packages("SetMethods", "QCA")
install.packages("ggplot2", lib = "/Users/laurastengl/R/libs")
library(SetMethods)
library (ggplot2)
library (tidyverse)
library (readxl)
library (QCA)

data1 <- read_excel("/Users/laurastengl/Desktop/QCACT.xlsx")
data1 <- data1 %>%
  mutate(
    Case = as.character(Case),
    Y    = as.numeric(trimws(as.character(Y))),
    X1   = as.numeric(X1),
    X2   = as.numeric(X2),
    X3   = as.numeric(X3))

row.names(data1) <- data1$Case
conds <- c("X1", "X2", "X3")

data1$Case <- as.character(data1$Case)
data1$Y <- as.numeric(trimws(data1$Y))

##Step 2: Create crisp outcomes##
data1 <- data1 %>%
  mutate(
    Y0 = ifelse(Y == 0, 1, 0),   # low coherence
    Y1 = ifelse(Y == 1, 1, 0),   # medium coherence
    Y2 = ifelse(Y == 2, 1, 0)    # high coherence)

##Step 2.1: Check necessary conditions for the outcome of interest##
QCAfit(data1[, c("X1","X2","X3")], data1$Y0,
       necessity = TRUE, neg.out = FALSE)

QCAfit(data1[, c("X1","X2","X3")], data1$Y1,
       necessity = TRUE, neg.out = FALSE)

QCAfit(data1[, c("X1","X2","X3")], data1$Y2,
       necessity = TRUE, neg.out = FALSE)
```

```
##Step 2.2: Check necessary conditions for the non-outcome##
QCAfit(
  data1[, c("X1","X2","X3")],
  data1$Y0,
  necessity = TRUE,
  neg.out = TRUE)

QCAfit(
  data1[, c("X1","X2","X3")],
  data1$Y1,
  necessity = TRUE,
  neg.out = TRUE)

QCAfit(
  data1[, c("X1","X2","X3")],
  data1$Y2,
  necessity = TRUE,
  neg.out = TRUE)

##Step 3: csQCA for low coherence (Y=0)##
incl_cut_IS <- 1
n_cut_IS    <- 1

#Step 3.1: Create the truth table#
tt_Y0 <- truthTable(
  data1,
  outcome = "Y0",
  conditions = c("X1", "X2", "X3"),
  show.cases = TRUE,
  complete = TRUE,
  sort.by = "incl, n")
tt_Y0

#Step 3.2: Conservative solution#
sol_Y0 <- minimize(
  tt_Y0,
  include = "1",
  details = TRUE,
  use.tilde = TRUE)
sol_Y0
```

```
#Step 3.3: Parsimonious solution#
sol_Y0_pars <- minimize(
  tt_Y0,
  include = "?",
  details = TRUE,
  use.tilde = TRUE)
sol_Y0_pars
sol_Y0_pars$SA

#Step 3.4: Intermediate Solution#
sol_Y0_int <- minimize(tt_Y0, include = "?",
                       details = TRUE, use.tilde = TRUE,
                       exclude = c(2, 3, 6))
sol_Y0_int
sol_Y0_int$SA

##Step 4: csQCA for medium coherence (Y=1)##
#Step 4.1: Create the truth table#
tt_Y1 <- truthTable(
  data1,
  outcome = "Y1",
  conditions = c("X1", "X2", "X3"),
  show.cases = TRUE,
  complete = TRUE,
  sort.by = "incl, n")
tt_Y1

#Step 4.2: Conservative solution#
sol_Y1 <- minimize(
  tt_Y1,
  include = "?",
  details = TRUE)
sol_Y1

#Step 4.3: Parsimonious solution#
sol_Y1_pars <- minimize(
  tt_Y1,
  include = "?",
  details = TRUE,
  use.tilde = TRUE)
sol_Y1_pars
sol_Y1_pars$SA
```

```
#Step 4.4: Intermediate Solution#
sol_Y1_int <- minimize(tt_Y1, include = "?",
                       details = TRUE, use.tilde = TRUE,
                       exclude = c(2, 3, 6))
sol_Y1_int
sol_Y1_int$SA

##Step 5: csQCA for high coherence (Y=2)##
#Step 5.1: Create the truth table#
tt_Y2 <- truthTable(
  data1,
  outcome = "Y2",
  conditions = c("X1", "X2", "X3"),
  show.cases = TRUE,
  complete = TRUE,
  sort.by = "incl, n")
tt_Y2

#Step 5.2: Conservative solution#
sol_Y2 <- minimize(
  tt_Y2,
  include = "?",
  details = TRUE,
  show.cases = TRUE)
sol_Y2

#Step 5.3: Parsimonious solution#
sol_Y2_pars <- minimize(
  tt_Y2,
  include = "?",
  details = TRUE,
  use.tilde = TRUE)
sol_Y2_pars
sol_Y2_pars$SA

#Step 5.4: Intermediate Solution#
sol_Y2_int <- minimize(tt_Y2, include = "?",
                       details = TRUE, use.tilde = TRUE,
                       exclude = c(2, 3, 6))
sol_Y2_int
sol_Y2_int$SA
```

```
# ============================
Robustness check for high coherence
# ============================
##Step 1: Load packages and specify data##
library(SetMethods)
library(QCA)
library(tidyverse)
library(readxl)
library(admisc)

qcadata_Y2 <- data1[, c("X1", "X2", "X3", "Y2")]
qcadata_Y2 <- as.data.frame(qcadata_Y2)

names(qcadata_Y2)
IS_Y2 <- sol_Y2_int

##Step 2: Determine the Sensitivity Ranges##
#Step 2.1: Variation in consistency threshold#
sens_incl_Y2 <- rob.inclrange(
  data       = qcadata_Y2,
  outcome    = "Y2",
  conditions = conds,
  incl.cut   = incl_cut_IS,
  n.cut      = n_cut_IS,
  include    = "?",
  step       = 0.05,
  max.runs   = 10)
sens_incl_Y2

#Step 2.2: Variation in frequency threshold#
sens_ncut_Y2 <- rob.ncutrange(
  data       = qcadata_Y2,
  outcome    = "Y2",
  conditions = conds,
  incl.cut   = incl_cut_IS,
  n.cut      = n_cut_IS,
  include    = "?",
  step       = 1,
  max.runs   = 10)
sens_ncut_Y2
```

```
##Step 3: Produce Alternative Solutions##
#incl.cut = 0.95#
tt_Y2_TS1 <- truthTable(
  data1,
  outcome     = "Y2",
  conditions  = conds,
  incl.cut    = 0.95,
  n.cut       = n_cut_IS,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")

TS1_Y2 <- minimize(
  tt_Y2_TS1,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)

#incl.cut = 0.90#
tt_Y2_TS2 <- truthTable(
  data1,
  outcome     = "Y2",
  conditions  = conds,
  incl.cut    = 0.90,
  n.cut       = n_cut_IS,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")

TS2_Y2 <- minimize(
  tt_Y2_TS2,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)

#stricter frequency threshold (at least two cases per row)#
tt_Y2_TS3 <- truthTable(
  data1,
  outcome     = "Y2",
  conditions  = conds,
  incl.cut    = incl_cut_IS,  # = 1
  n.cut       = 2,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")
```

```
TS3_Y2 <- minimize(
  tt_Y2_TS3,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)

#Create test set#
TS_Y2 <- list(TS1_Y2, TS2_Y2, TS3_Y2)

##Step 4: Obtain the TS and the RC##
corefit_Y2 <- rob.corefit(
  test_sol    = TS_Y2,
  initial_sol = IS_Y2,
  outcome     = "Y2")
corefit_Y2
RC_Y2 <- intersection(IS_Y2, TS1_Y2, TS2_Y2, TS3_Y2)
RC_Y2

##Step 5: Calculate the RF Parameters##
fit_Y2 <- rob.fit(
  test_sol    = TS_Y2,
  initial_sol = IS_Y2,
  outcome     = "Y2")
fit_Y2

##Step 6: Identify Robustness-relevant types of cases and the RCRs##
#Stp 6.1: YX-Plot: IS_2 vs. test solutions#
rob.xyplot(
  test_sol    = TS_Y2,
  initial_sol = IS_Y2,
  outcome     = "Y2",
  all_labels  = FALSE,
  fontsize    = 3,
  jitter      = TRUE,
  area_lab    = TRUE)

#Step 6.2: Hardest test range (worst set coincidence/ RCC)#
single_Y2 <- rob.singletest(
  test_sol    = TS_Y2,
  initial_sol = IS_Y2,
  outcome     = "Y2")
single_Y2
```

```
# ============================
Robustness check for medium coherence
# ============================
# Step 1: Adjust data#
data1 <- data1 %>%
  mutate(
    Y0 = ifelse(Y == 0, 1, 0),
    Y1 = ifelse(Y == 1, 1, 0),
    Y2 = ifelse(Y == 2, 1, 0))

qcadata_Y1 <- data1[, c("X1", "X2", "X3", "Y1")]
qcadata_Y1 <- as.data.frame(qcadata_Y1)
names(qcadata_Y1)
IS_Y1 <- sol_Y1_int

##Step 2: Determine the Sensitivity Ranges##
#Step 2.1: Variation in consistency threshold#
sens_incl_Y1 <- rob.inclrange(
  data       = qcadata_Y1,
  outcome    = "Y1",
  conditions = conds,
  incl.cut   = incl_cut_IS,
  n.cut      = 1,
  include    = "?",
  step       = 0.05,
  max.runs   = 10)
sens_incl_Y1

#Step 2.2.: Variation in frequency threshold#
sens_ncut_Y1 <- rob.ncutrange(
  data       = qcadata_Y1,
  outcome    = "Y1",
  conditions = conds,
  incl.cut   = incl_cut_IS,
  n.cut      = n_cut_IS,
  include    = "?",
  step       = 1,
  max.runs   = 10)
sens_ncut_Y1

##Step 3: Produce Alternative Solutions##
#incl.cut = 0.95#
tt_Y1_TS1 <- truthTable(
  data1,
  outcome     = "Y1",
  conditions  = conds,
  incl.cut    = 0.95,
  n.cut       = n_cut_IS,
```

```
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")

TS1_Y1 <- minimize(
  tt_Y1_TS1,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)

#incl.cut = 0.90#
tt_Y1_TS2 <- truthTable(
  data1,
  outcome     = "Y1",
  conditions  = conds,
  incl.cut    = 0.90,
  n.cut       = n_cut_IS,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")

TS2_Y1 <- minimize(
  tt_Y1_TS2,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)

#stricter frequency threshold (at least two cases per row)#
tt_Y1_TS3 <- truthTable(
  data1,
  outcome     = "Y1",
  conditions  = conds,
  incl.cut    = incl_cut_IS,  # = 1
  n.cut       = 2,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")

TS3_Y1 <- minimize(
  tt_Y1_TS3,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)
###Note. Error: none of the values in OUT is explained. Please check the
truth table#
```

```
# ============================
Robustness check for low coherence
# ============================
#Step 1: Adjust data#
qcadata_Y0 <- data1[, c("X1", "X2", "X3", "Y0")]
qcadata_Y0 <- as.data.frame(qcadata_Y0)

names(qcadata_Y0)
IS_Y0 <- sol_Y0_int

##Step 2: Determine the Sensitivity Ranges##
#Step 2.1: Variation in consistency threshold#
sens_incl_Y0 <- rob.inclrange(
  data       = qcadata_Y0,
  outcome    = "Y0",
  conditions = conds,
  incl.cut   = incl_cut_IS,
  n.cut      = n_cut_IS,
  include    = "?",
  step       = 0.05,
  max.runs   = 10)

sens_incl_Y0

#Step 2.2: Variation in frequency threshold#
sens_ncut_Y0 <- rob.ncutrange(
  data       = qcadata_Y0,
  outcome    = "Y0",
  conditions = conds,
  incl.cut   = incl_cut_IS,
  n.cut      = n_cut_IS,
  include    = "?",
  step       = 1,
  max.runs   = 10)
sens_ncut_Y0

##Step 3: Produce Alternative Solutions##
#incl.cut = 0.95#
tt_Y0_TS1 <- truthTable(
  data1,
  outcome     = "Y0",
  conditions  = conds,
  incl.cut    = 0.95,
  n.cut       = n_cut_IS,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")
```

```
TS1_Y0 <- minimize(
  tt_Y0_TS1,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)

#incl.cut = 0.90#
tt_Y0_TS2 <- truthTable(
  data1,
  outcome     = "Y0",
  conditions  = conds,
  incl.cut    = 0.90,
  n.cut       = n_cut_IS,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")

TS2_Y0 <- minimize(
  tt_Y0_TS2,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)

#stricter frequency threshold (at least two cases per row)#
tt_Y0_TS3 <- truthTable(
  data1,
  outcome     = "Y0",
  conditions  = conds,
  incl.cut    = incl_cut_IS,  # = 1
  n.cut       = 2,
  show.cases  = TRUE,
  complete    = TRUE,
  sort.by     = "incl, n")

TS3_Y0 <- minimize(
  tt_Y0_TS3,
  include   = "?",
  details   = TRUE,
  use.tilde = TRUE)
###Note. Error: none of the values in OUT is explained. Please check the
truth table#

# ============================
Citations
# ============================
citation("ggplot2", "tidyverse", "readxl", "SetMethods", "QCA", "knitr")
```