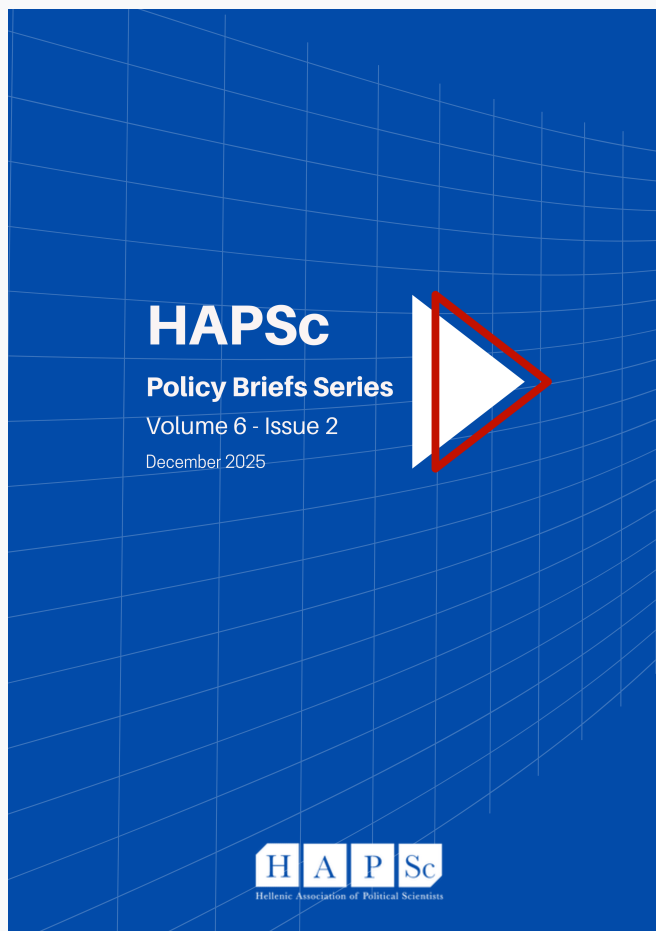


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### Securing Energy Transportation at Sea: Sanctions, Maritime Risk, and Strategic Compliance

*Chrysanthi Raftopoulou*

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# Securing Energy Transportation at Sea: Sanctions, Maritime Risk, and Strategic Compliance<sup>1</sup>

Chrysanthi Raftopoulou<sup>2</sup>

## Abstract

With over 80 percent of global trade conducted by sea, the maritime domain represents both an essential economic artery and a persistent vulnerability to terrorism and sanctions evasion. The study analyzes how layered evasion tactics, such as AIS manipulation, unclear ownership structures, document falsification, and irregular routing, undermine fragmented compliance frameworks. It argues that effective maritime security requires a holistic, risk-based approach integrating vessel identification, ownership analysis, cargo and route assessment, supply-chain due diligence, and continuous monitoring. The paper concludes that while sanctions enhance accountability, they also incentivize adaptive evasion networks. Robust, intelligence-led compliance frameworks are therefore essential to mitigating legal, financial, and strategic risks while safeguarding the integrity of global energy and maritime trade systems.

**Keywords:** Sanctions; Compliance; Shipping industry; Terrorism; Energy transportation

## Introduction

Energy plays a central role in grand strategy in international relations and is employed not only as an end itself but also as a means, or a way/tool for states to achieve other broader strategic ends. The classical tripartite framework (Ends, Means, Ways) provides a thoroughly productive analytical point (LaBelle, 2023). When conceptualized as an *end*, energy becomes the goal of state policy: to acquire, control, or deny energy resources. When used as a *way*, energy serves as an instrument of influence, coercion, or diplomacy, while as a *means*, it provides financial foundation enabling states to pursue broader economic or military ambitions. Shipping consists the driving force of global trade, as it operates within a complex network of legal, operational, and geopolitical risks. In fact, the global maritime industry is a critical element of the global economy, through which more than 80% of goods are traded internationally. Due to its extent and importance, maritime transport is likely to be a target by terrorist groups, while at the same time the enormous, relatively unregulated spaces that cover much of the world's ocean enhance this risk (Herbert-Burns et al., 2010; Book et al., 2025).

At the heart of debates on maritime security lies a central academic and political dilemma: the proportionality between the perceived risk of maritime terrorism. In a strategic level, prevention-

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<sup>2</sup> MSc in Energy: Strategy, Law & Economics, Department of International and European Studies, University of Piraeus, Greece.

oriented measures remain of high importance (Milina, 2007; Zelenkov et al., 2022). Recommendations for strengthening maritime security are multi-layered, reflecting the diverse range of actors involved and the complex nature of the threats facing global shipping and energy transportation (Sabatini & Isard, 2025). In this context, sanctions compliance has emerged as an integral dimension of maritime security, addressing the financial and regulatory vulnerabilities that can indirectly enable terrorism, proliferation financing, or illicit trade. Both forms of compliance (operational and financial) share a common strategic objective: to ensure the integrity, transparency, and lawfulness of maritime operations (Unit21, n.d.). The evolution from safety-based compliance to holistic risk management demonstrates that maritime security is no longer confined to the protection of ships and ports, but extends to the protection of commercial legitimacy and international legal order (Linney & Cadet, 2024; International Maritime Organization, n.d.a).

## **Recommendations for Shipping Companies on Sanctions Compliance**

### ***Strategic Implications***

Sanctions evasion is rarely the product of a single method; instead, it is achieved through the layering of multiple tactics, including AIS manipulation, circuitous routing, unclear ownership structures, document falsification, and cargo misdeclaration. Each tactic may appear harmless in isolation, but together they form coordinated schemes designed to evade detection. For this reason, compliance programs that treat these factors separately are at risk of overlooking critical connections. A holistic approach, is therefore essential for identifying coordinated evasion strategies (Office of Foreign Assets Control, 2024; VIZION, 2024; International Maritime Organization, n.d.b).

In addition, risk-based approach further enhances the efficiency of compliance frameworks. Given that many companies operate under constrained budgets, prioritizing resources toward the highest-risk vessels, voyages, and counterparties is a pragmatic strategy that maximizes impact. Beyond regulatory exposure, the reputational consequences of association with questionable practices should be considered too. Even in cases where activities fall short of formal sanctions violations, for example, vessels listed on Office of Foreign Assets Control (OFAC) advisories but not formally designated, the risk to counterparty trust and corporate reputation is significant. In this respect, compliance is not limited to the avoidance of legal penalties (Office of Foreign Assets Control, 2024).

### ***Senior Management Commitment and Workforce Training***

The success of any sanctions compliance program relies on a visible commitment from senior leadership. Active involvement from senior management is important to create an organizational

culture that prioritizes compliance and incorporates it into strategic decision-making. Creating a visibility of senior leadership engagement with workforce training enhances an organization's compliance posture, legitimizing it with credibility and resiliency. In order to complement this commitment, organizations need to establish structured and embracive, role-specific training across the organization. Training should not only perform the purpose of providing the legal requirements associated with sanctions, training must also provide understanding of the role sanctions compliance plays in operations while constructing manager accountability (regular assessments, performance reviews, etc) (NorthStandard, 2025; Lloyd's List Intelligence, n.d.).

### ***Defining Organizational Risk Parameters***

The formulation of precise internal risk parameters represents a critical foundation for an effective sanctions compliance program. Such parameters provide organizational clarity, ensuring that employees comprehend both the minimum control standards required and the broader objectives of sanctions compliance. A structured risk-based framework, as consistently emphasized by regulatory authorities such as OFAC, necessitates the systematic identification and assessment of risks across geographic, operational, and sectoral dimensions. These assessments should incorporate both internal and external variables, including client profiles, product and service offerings, and vulnerabilities within complex supply chains. Equally important is the establishment of clear due diligence protocols, particularly with respect to timelines, as early identification of high-risk activities remains central to the prevention of sanctions breaches and the mitigation of regulatory exposure (Office of Foreign Assets Control, 2020).

### ***Systematic Use of Watch Lists in Maritime Sanctions Compliance***

Shipping companies have to make the systematic use of watch lists a foundational priority for their sanctions compliance programs. The process begins with cross-referencing vessel names and International Maritime Organization (IMO) numbers against national and international sanctions lists, such as the U.S. Office of Foreign Assets Control (OFAC) Specially Designated Nationals (SDN) List and databases maintained by other regulatory authorities (Office of Foreign Assets Control, 2024; Teoh, 2025).

Beyond formal designations, companies are encouraged to consult United Nations Panel of Experts reports, particularly those concerning the Democratic People's Republic of Korea (DPRK) and other sanctioned jurisdictions. These reports frequently provide detailed accounts of vessels and ownership networks involved in sanctions evasion activities, offering valuable insight into high-risk actors. Analytical outputs from independent research organizations, such as the Center for Advanced

Defense Studies (C4ADS), also contribute case-based assessments that uncover illicit maritime patterns in ownership structures, trade routes, and cargo activity that may not appear in official records (Financial Action Task Force, 2025).

### ***Integration and Prioritization of Watch List Data***

The integration of watch list data into compliance programs should be approached strategically, particularly for companies operating with limited resources. For smaller operators, reliance on granular information embedded within formal sanctions lists (especially the SDN List) provides a cost-effective means of reinforcing due diligence procedures. However, the reach of compliance must extend beyond OFAC designations to include vessels documented in United Nations reports, which often capture entities involved in sanctions evasion but not formally listed by U.S. or EU authorities (IHS Markit, IIBLP & ACSS, 2022).

Given the frequent duplication of vessel names, the IMO number remains the most reliable identifier for tracking and confirming compliance status. Embedding IMO numbers into internal monitoring systems can substantially reduce the risk of false positives and misidentification (Financial Action Task Force, 2025).

In addition to external data sources, companies should consider developing internal “grey” or “black” lists by collating vessel and ownership information from United Nations publications, think-tank analyses, and government advisories. These internally curated resources act as a secondary safeguard that complements external databases and supports more nuanced risk evaluation (Financial Action Task Force, 2025).

### ***Vessel Identification and Flag Registration***

The identification of vessels through names, flags, and IMO numbers is a fundamental aspect of compliance monitoring, yet each element is vulnerable to manipulation. Vessel renaming, often coinciding with ownership changes, disrupts historical tracking and complicates the linkage of past activities to present operations. While a name change alone may not indicate illicit behavior, it becomes significant when combined with other red flags. The use of “flags of convenience” (FOCs), although not inherently problematic, lowers barriers to concealment and limits accountability. Rapid flag switching, particularly in connection with high-risk trade or ownership changes, raises compliance concerns. Statistical data further show that older vessels, particularly tankers and bulk carriers, are disproportionately implicated in sanctions evasion by networks in Iran and the DPRK due to their low acquisition costs and expendability (Financial Action Task Force, 2025). A

compound risk analysis that considers name, flag, ownership, and age collectively provides a more accurate assessment than reliance on any single factor in isolation (OECD, 2020).

***Ownership and Corporate Structures***

Unclear ownership structures remain one of the most persistent challenges in maritime compliance, enabling sanctioned entities to obscure beneficial ownership through layers of companies registered across multiple jurisdictions. Maritime ownership structures are frequently layered and lack transparency, with vessels often flagged in one jurisdiction, managed from another, and ultimately owned by legal entities in a third. Some of the most common warning signs include frequent ownership changes, shell companies owning only a single vessel, and registered addresses linked to residential apartments or law firms rather than established business offices. These practices suggest concealment rather than legitimate commercial activity (Financial Action Task Force, 2025; Dixon, 2023).

The establishment of shell companies is a prevalent method for evading sanctions. These companies often appear legitimate yet are primarily used to facilitate illegal activities. In addition, formation of networked front companies, which means entities that share ownership, addresses, or transaction profiles but have little web presence, making their activities difficult to detect. Of course, through unclear ownership structures when it comes to companies that operate in free trade zones or regions with lax regulatory enforcement could effectively hide their connections to sanctioned entities, especially those linked to countries like Iran (The Fact Coalition, 2019; Financial Action Task Force, 2025).

***Integration of Risk Assessments, KYC Procedures and Supply Chain Counterparty Risks***

The below table presents an integration of several thematic areas of compliance risks, key insights and their purposes for better clarity (IHS Markit, IIBLP & ACSS, 2022; Bueger et al. 2024; OECD, 2020):

**Table 1.** Integration of Risk Assessments, KYC Procedures and Supply Chain Counterparty Risks

Thematic Area	Key Compliance Insights	Purpose / Risk Mitigated
Scope of Compliance Risks	Compliance exposure extends beyond vessel ownership to the wider maritime ecosystem (charterers, brokers, insurers, financiers, port authorities, crewing companies, and ship registries). OFAC’s 2020 Shipping Advisory warns that all such actors can be exploited by sanctions evaders.	Addresses hidden exposure across the maritime trade ecosystem.

<b>Counterparty Risk Distribution</b>	Risk levels vary; charterers with repeated exposure to sanctioned jurisdictions, brokers lacking transparent offices, and insurers covering vessels with unclear ownership profiles all present heightened vulnerabilities.	Enables targeted risk-based due diligence.
<b>Sanctions-Specific Risk Assessments</b>	Shipping companies should perform regular, sanctions-focused risk assessments considering customer base, services, geography, and operations (adjusted for political and market changes).	Keeps compliance responsive to political and operational change.
<b>KYC / CDD Procedures</b>	Strong Know Your Customer (KYC) and Customer Due Diligence (CDD) protocols during onboarding: collect identifying data, verify business purpose, screen for sanctions exposure and beneficial ownership.	Prevents onboarding of high-risk or sanctioned clients.
<b>Enhanced Due Diligence (EDD)</b>	For higher-risk clients, apply EDD using customized indicators such as trade routes, end-user certificates, and goods' origin/destination.	Enhances control over complex or high-exposure clients.
<b>Supply Chain Transparency</b>	Extend due diligence beyond direct clients to include their counterparties, given the multi-layered structure of maritime trade.	Captures indirect exposure in layered trade networks.
<b>Continuous Monitoring</b>	Maintain ongoing screening for sanctions, PEP designations, adverse media, and legal status changes (e.g. transition to SOE status).	Maintains real-time compliance awareness.

***Preserve a Tamper-Proof Audit Trail as Evidence of Compliance Integrity***

Increased regulatory inspections require the documented retention of proof of compliance. A verifiable audit trail could be established, including due diligence, screening results, transaction reviews, escalated processes, etc., will act as a major piece of evidential protection in connection with enforcement actions and examinations (Office of Foreign Assets Control, 2024). As a result, compliance records provide both a defense and mechanism for ongoing program efforts.

***Visibility and AIS Monitoring***

The AIS serves as a central component of modern vessel tracking, but its reliability is undermined by deliberate manipulation. While isolated outages may result from simple technical issues, repeated or prolonged periods of AIS silence (particularly in high-risk zones like the Persian Gulf) are widely recognized as indicators of illicit activity. Common evasion tactics include disabling transponders, falsifying positional data (“spoofing”), or exploiting coverage gaps in maritime regions associated with sanctions evasion (Office of Foreign Assets Control, 2024; Jubaidi & Wagiman, 2024).

***Route Risk Assessment***

Routing analysis provides another dimension of compliance monitoring, revealing both the

commercial logic of legitimate operations and the irregularities that often characterize illicit activity. Normal trade routes are shaped by predictable supply and demand dynamics, whereas sanctions evasion tends to involve circuitous, illogical, or high-risk paths (Marine Public, 2025).

Certain geographic regions present elevated risk due to their proximity to sanctioned states, such as the Persian Gulf near Iran. Passage through these areas frequently coincides with ship-to-ship transfers and other concealment practices. Additional warning signs include abrupt deviations from established trade patterns, detours lacking commercial rationale, or route adjustments that increase voyage costs without clear justification (IHS Markit, IIBLP & ACSS, 2022; Marine Public, 2025).

### ***Cargo Analysis***

Cargo-related information provides another valuable indicator of compliance risk, as illicit actors frequently falsify documentation to obscure origin, destination, or cargo type. Economic plausibility checks allow firms to identify inconsistencies between declared cargoes and vessel specifications (Marine Public, 2025; Financial Action Task Force, 2025).

For example, the appearance of bulk commodities such as iron ore or coal on product tankers, or heavy industrial machinery assigned to general cargo vessels, signals potential fraud. Additional close examination can be applied through port capacity assessments, as declared cargoes should align with the infrastructure of the receiving port – for instance, the presence of LNG facilities or bulk handling capacity (Marine Public, 2025; Cyber Risk GmbH, n.d.).

### ***Modification of Documents***

Documentation fraud represents one of the oldest and most persistent techniques of sanctions evasion. False or manipulated shipping documents, including bills of lading (BLs), letters of credit (LCs), and insurance certificates, are often used to conceal the true identity of vessels, the origin of cargoes, or the intended end destination of shipments (IHS Markit, IIBLP & ACSS, 2022; Office of Foreign Assets Control, 2025; United Nations Office on Drugs and Crime, 2019).

Letters of Indemnity (LOIs) play an important role in ensuring compliance with sanctions regulations in maritime transactions. Considering the complex state of economic sanctions, which may restrict trade and financial relations with specific countries, entities, or individuals, LOIs serve as protective mechanisms for parties involved in shipping and related activities. They can mitigate risks associated with sanctions by providing assurances against financial losses arising from non-compliance or inadvertent violations of sanction laws (Jubaidi & Wagiman, 2024).

In maritime transactions, where the risk of encountering sanctioned parties is high, LOIs are often essential for securing financing and facilitating trade. They provide a layer of security for shipowners and operators by outlining the terms under which indemnification will occur, thereby allowing them to handle the challenges of sanctions compliance. Additionally, incorporating sanctions clauses in LOIs can enhance their effectiveness, as these clauses explicitly address the consequences of any sanctions violations, further safeguarding the interests of all parties involved (Jubaidi & Wagiman, 2024).

## Conclusions

The preceding analysis underscores the intricate and dynamic nature of sanctions compliance in the maritime sector. The main challenge in maritime security is the prevailing imbalance between risk perception and the real threat. Sanctions, proliferation financing measures, and AML obligations all significantly overlap but lack harmonization. It is clear that maritime terrorism cannot be mitigated solely through physical security measures; it urgently requires synchronized compliance efforts and greater trade transparency.

Currently, the compliance programs used by companies consist an amalgama of different and complex parameters that need to be followed in order for companies to be on the safe side and avoid the risk and consequences of non-compliance to the regulations. Regardless of the perceived strengths these programs embody, the weaknesses remain.

Sanctions themselves play the role of a double-edged tool; while they are important for enhancing accountability, they simultaneously drive the creation of adaptive evasion networks. Measures from regulatory bodies like OFAC, OFSI and the EU certainly increase transparency, but they also overburden operators with conflicting obligations, often leading in the creation of shadow fleets. In any case, while the implementation of compliance frameworks may appear resource-intensive, the strategic dividends they yield are extensive, in mitigating legal and financial exposure and the enhancement of investor and stakeholder confidence.

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