Author: Giulio Tomio

Peer review: Sergiu Mitrescu

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The Shape of Putin's Shadows: The Russian Ghost Fleet

Author: Giulio Tomio

Peer review: Sergiu Mitrescu

Authors: Giulio Tomio, non-resident expert, New Strategy Center
Peer-review: Sergiu Mitrescu, Associate expert, New Strategy Center

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About New Strategy Center

New Strategy Center is a Romanian think tank specializing in foreign, defence and security policy, a non-partisan, non-governmental organisation. New Strategy Center operates at three main levels: providing analytical inputs and expert advice to decision-makers; holding regular debates, both inhouse and public, on subjects of topical interest; expanding external outreach through partnerships with similar institutions or organisations all over the world, joint policy papers and international conferences. The Balkans and the Black Sea space are priority areas of interest for New Strategy Center.

1. Introduction

In an unprecedented sanctions environment, the Russian "shadow fleet", also commonly referred to as the "ghost fleet", has emerged as a logistical pillar of seaborne exports of crude oil and petroleum products. These designations generally refer to a network of tankers and affiliated intermediaries that operatein ways designed to reduceexposure to Western regulatory oversight and to the service dependencies most sensitive to control, particularly those linked to finance,insurance, classification, and compliance, thereby preserving Russia's ability to move energy volumes despite restrictions. Beyond its immediaterelevance to the war economy, the shadow fleet raises broader strategic questions about the practical enforceability of maritime sanctions, the resilience of global shipping governance, and the allocation of environmental and safety risks when large-scale trade is routed through opaque and weakly regulated structures.

The objective of this study is to analyze the Russian shadow fleet as a comprehensive, system-level phenomenon and to assess how it has evolved in response to shifting international countermeasures. To do so, the study combines a fleet-wide perspective with vessel-level scrutiny, examininghow the composition of the network, the characteristics of individual ships, and the broader logistical architecture interact over time. It reconstructs the fleet's development and operational profile, identifies its technical, legal, and organizational features, and analyzes its geographic patterns and economic role in sustaining Russian exports. Finally,it evaluates the impact of sanctions, both in their design and in their enforcement, on the fleet's effective usability, tracing how policy shifts translate into constraints on specific vessels, on the network's overall capacity, and on Russia's ability to maintain export continuity.

2. Methodology

This study analyzes the Russian shadow fleet through a combination of original vessel-level data collection and selected secondary sources. The empirical core is a purpose-built dataset compiled from open-source maritime information. The Ukrainian government's sanctions monitoring platform[1] is used as the baseline reference for identifying suspected vessels, and these records are then systematically cross-checked and enriched with data from Equasis, VesselFinder, and MarineTraffic to collect technical specifications, ownership and management details, flag histories, and observable trading activity. Triangulation across platforms is used to reduce gaps, inconsistencies, and reporting lags, ensuring that key variables are coded on the basis of convergent evidence rather than single-source claims.

To interpret vessel-level patterns within their wider regulatory and commercial setting, the study also draws on policy documents, industry advisories, and analytical reporting from international organizations, think tanks, and

specialized maritime outlets. Given the structural opacity of shadow operations, some variables cannot be observed directly; where information is incomplete, the study uses standardized inferencerules to code missing attributes on the basis of observable signals, such as documented changes in ownership and management, flag transitions, and discontinuities in trading activity across the available tracking records.

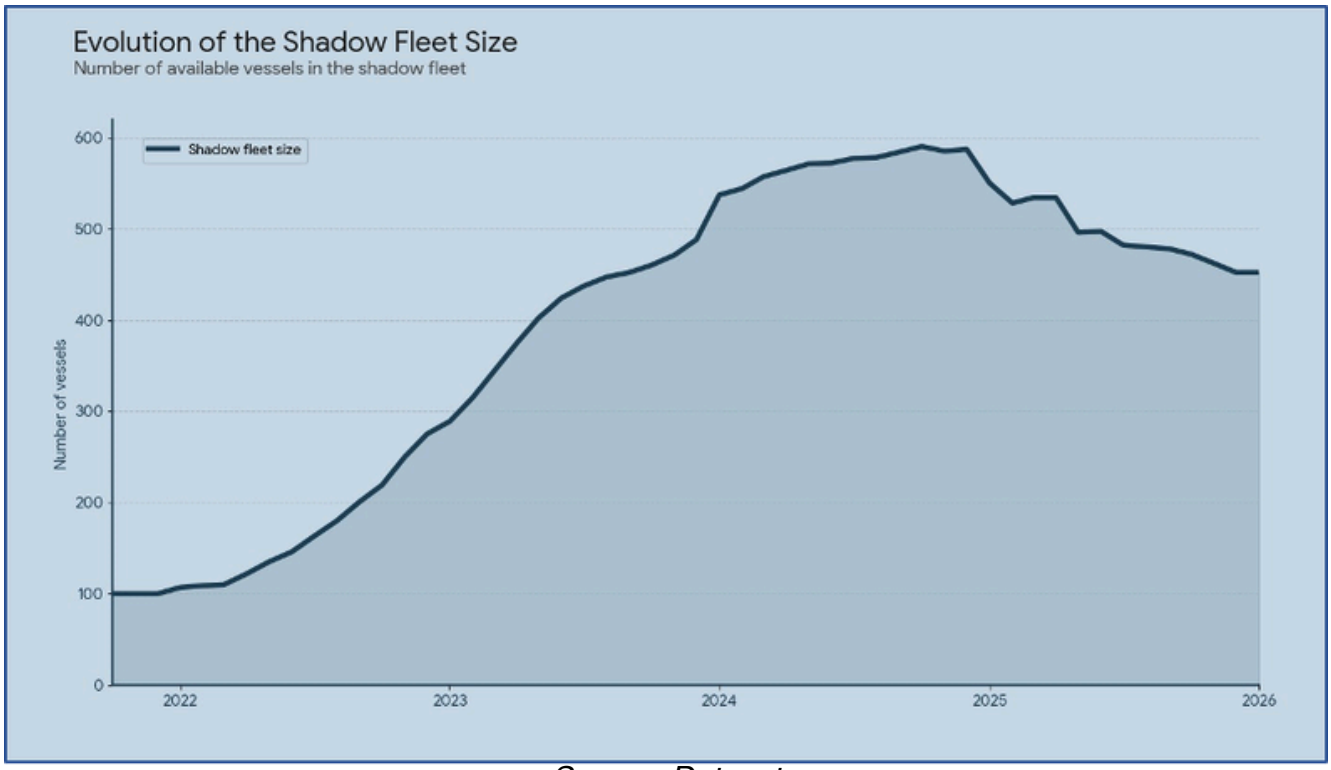
3. Emergence, Expansion, and Contraction of the Russian Shadow Fleet

The strategic development of the Russian shadow fleet reflects a complex response to international pressure, evolving through distinct phases of growth and subsequent decline. In 2014, following Russia's annexation of Crimea, the international community responded weakly by imposing targeted economic sanctions that left crude oil production and exports untouched. These measures were limited to restricting access to Western financing and specialized oil extraction technology for state-linked entities, alongside strict commercial limitations specifically targeting the territory of Crimea.

Maritime-related evasion needs emerged early for operations likely to be flagged and sanctioned, such as calls at Crimean ports, the transport of goods of Crimean origin, and logistical support to sanctioned infrastructure, which risked the loss of Western insurance, classification, and access to global chartering markets. Vessels adopted countermeasures inspired by Iranian practices developed under oil sanctions, relying on concealment at sea through indirect routing to disguise voyage origins, ship-to-ship (STS) transfers in international waters to obscure cargo provenance, and the manipulation of AIS signals to hide port calls and vessel movements.

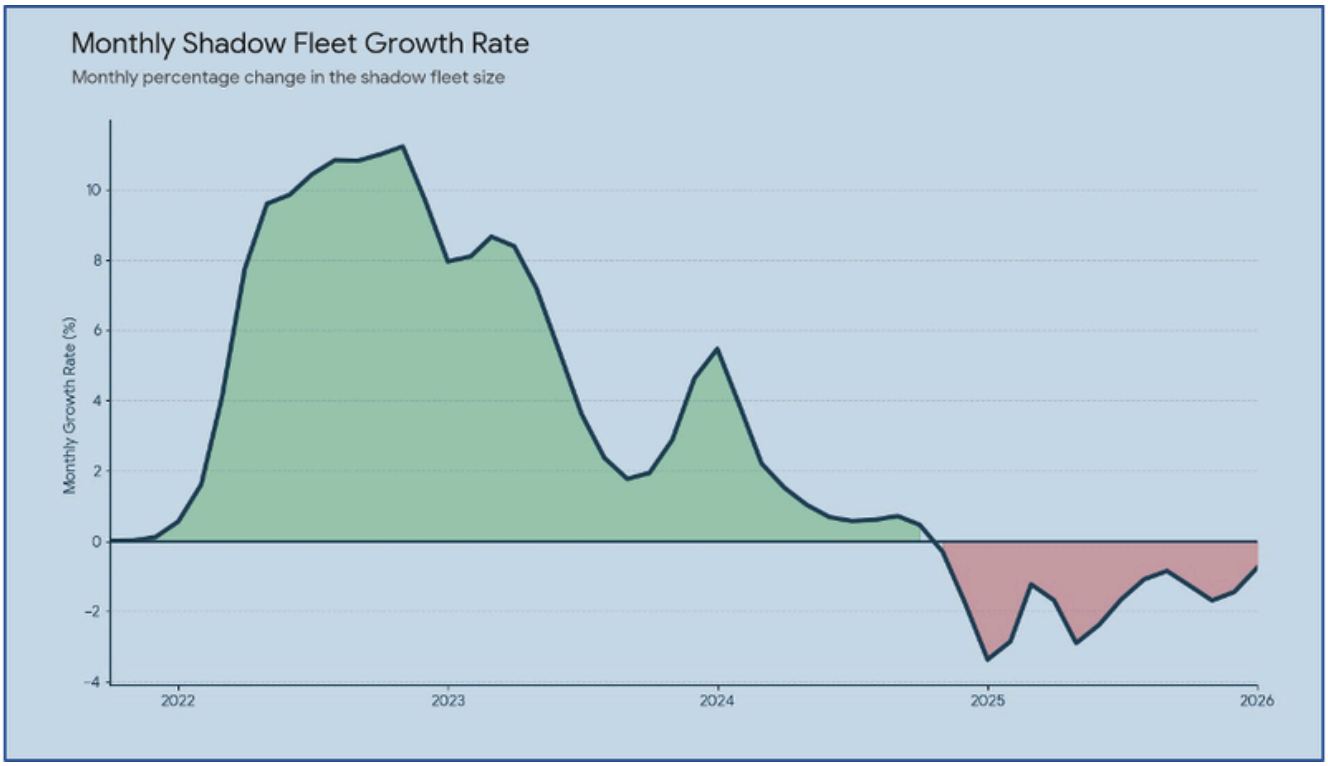
To meet these needs, Russia began developing the initial nucleus of whatwould become its shadow fleet almost immediately after the annexation. By the time of the full-scale invasion of Ukraine in February 2022, thisearly network had grown to roughly 100 vessels, the majority of which originated from Russian owners, mainly former Sovcomflot tankers, while the remainder came from non-EU and non-Russian owners, with most of these vessels subsequently transferred to jurisdictions operating as flags of convenience, such as Panama, Liberia, and Gambia, which offer minimal regulatory oversight and greater operational anonymity.[2]

From the moment of the invasion in February 2022, the network entered a new phase characterized by a sharp and sustained acceleration, with the fleet rising from just over one hundred ships at the start of the year. Throughout 2022 and early 2023, the number of ships linked to shadow operations grew rapidly, particularly after the EU embargo on Russian crude oil in December 2022, which banned seaborne imports into member states and tied shipping and insurance services to compliance with the G7 price cap of 60 dollars per barrel. In the wake of these measures, the fleet more than doubled its pre-invasion size and surpassed 400 vessels by mid-2023, marking the shift from an auxiliary tool to a central pillar of Russia's maritimetrade strategy.



Source: Dataset

Throughout late 2023 and the first half of 2024, the previously explosive growth of the shadow fleet began to plateau. Despite a persistent demand for additional maritime capacity to sustain export flows, the rate of new acquisitions slowed significantly, leading to a period where the fleet's size reached a ceiling as the network struggled to expand further.

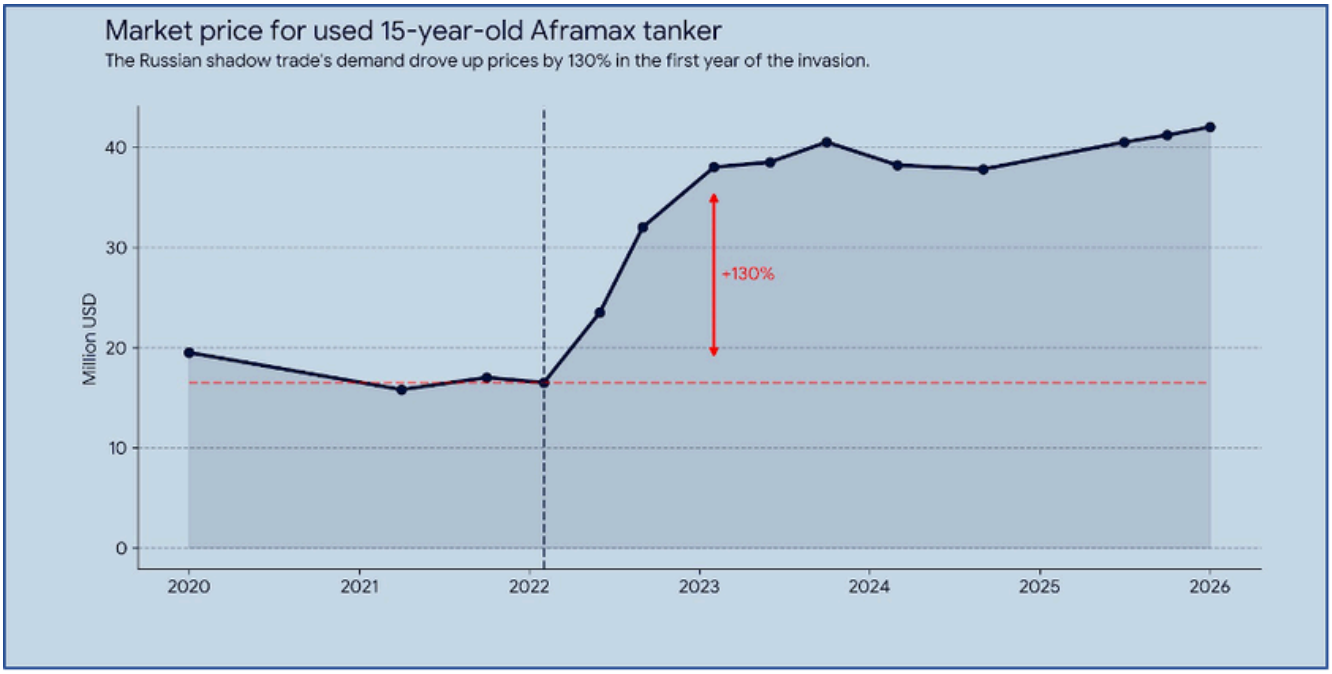


Source: Dataset

By late 2024, the fleet reached its numerical peak at just under 600 vessels before entering a phase of definitive contraction. Into 2025, the total number of active ships began to decline as the network started to shrink under the weight of external factors and targeted sanctions, which increasingly hindered the replacement of inactive or compromised tankers.

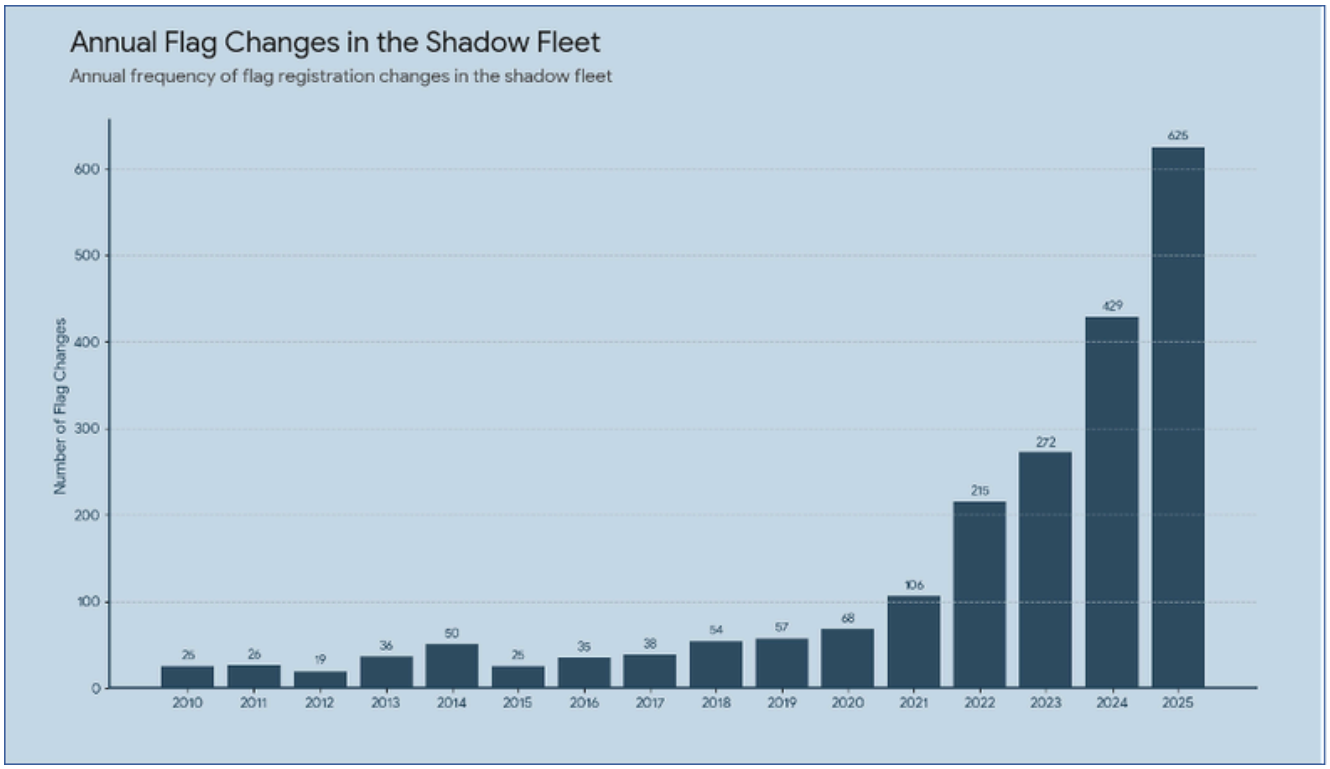
Structural Opportunities and Strategic Agency

The evolution of Russia'sshadow fleet has been shapedby Moscow's activeexploitation of structural opportunities, notably within legal frameworks, and external constraints, which together determinedboth its rapid expansion after 2022 and the more recent signs of contraction. At the beginningof 2022, Russia launched an aggressive acquisition campaign in the secondary tanker market, which offered a large pool of older vesselsin the 15-to-20-year range. While mainstream operators were eager to phase out these units due to higher maintenance costs and stricter safety rules, Russia turnedthis aging tonnageinto a vital strategic asset.Although these ships were nearing the end of their traditional commercial life, Russian-linked actors acquired them through offshore entities to actively assemble a fleet dedicated to circumventing sanctions.



Source: VesselsValue; Navigating Russia

The intensity of this demand is illustrated by the sharp rise in second-hand tanker prices: the market value of a 15-year-old Aframax[3] increasedby around 130% in the first year of the invasion and remained on a high plateauthrough 2025, signaling a persistent structural scarcity of available tonnage to replace sanctioned units.[4] longside rising prices, the number of annual flag changes in the shadow fleet grew dramatically, surging from 106 in 2021 to a record high of 625 in 2025. This pattern illustrates a massive handover of ships into opaque ownership structures while simultaneously reflecting a continuous effort to obscure vessel identity through jurisdictional migration.



Source: Dataset

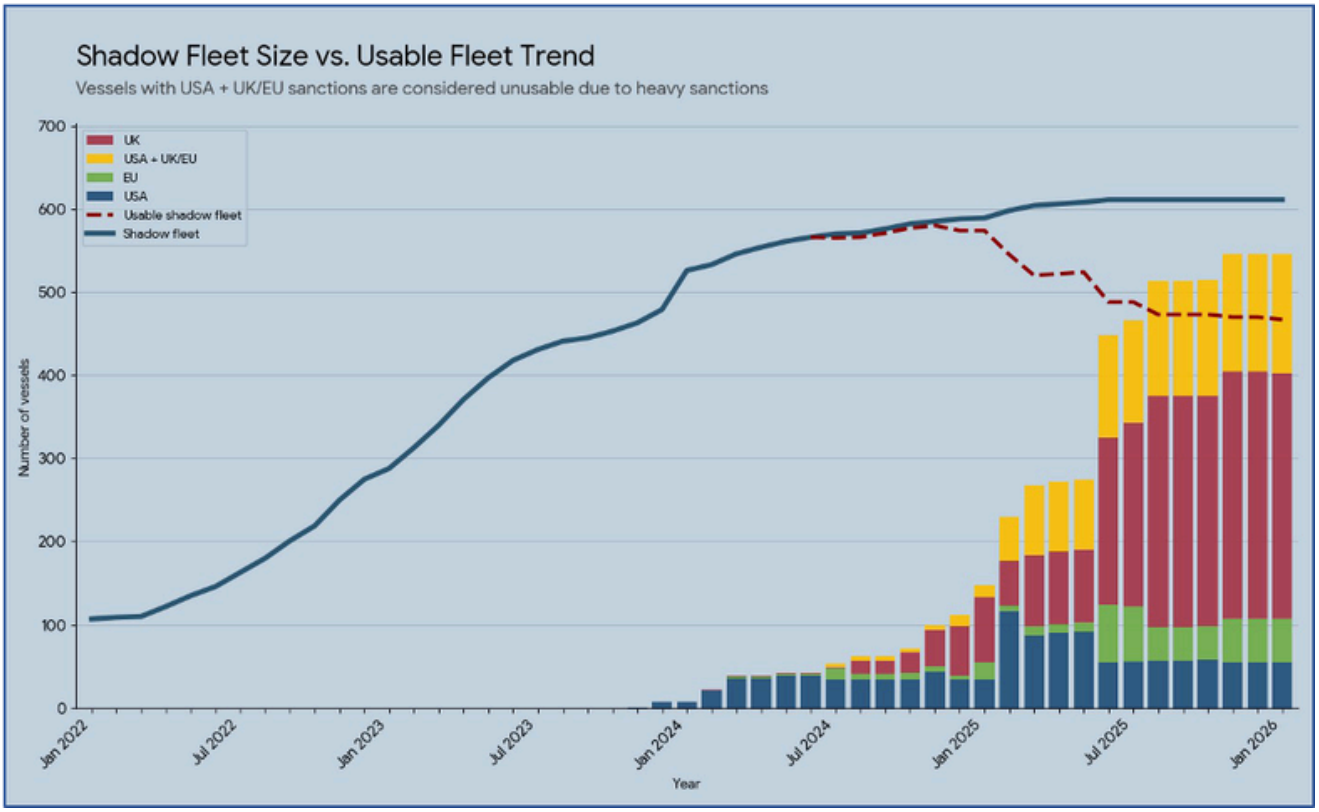
After the imposition of Western sanctions, Russia redirected a significant share of its crude oil exports from Europe to alternative markets, primarily India, China, and Turkey. These new trade routes were substantially longer than pre-war European routes, inherently tying up vessels for extended periods and reducing fleet turnover. The shift towards distant markets therefore generated a sharp increase in tanker demand, especially for Aframax and Suezmax classes, which were suited for long-haul shipments.

International sanctions have been a central driver in this process, first fueling the rapid growth of the fleet and later contributing to its contraction. A critical factor in this expansion was that, unlike the Iranian sanctions regime, Russian oil measures lacked secondary sanctions. This meant that third-party importers in India, China, or Turkey faced no direct legal risk for purchasing Russian crude.

Consequently, this created a space for open trade where the primary obstacle was the targeting of specific Russian entities. This environment provided a strong incentive for Russia to expand its fleet using "sanction-proof" tankers:vessels without any ties to EU or G7 ownership, financing, or International Group (IG) P&I insurance. Because these ships operated entirely outside Western jurisdiction, they remainedimmune to entity-level restrictions, allowing Russiato transport oil priced above the cap without fear of international enforcement.[5]

Starting in late 2024, however, the strategy shifted from targeting entities toward directly designating individual tankers. While early measures in 2023 affectedonly a small portion of capacity, the impact was immediate as sanctioned tankers stopped lifting Russian oil. The approach intensified in mid-2024 with UK and EU designations, culminating in the

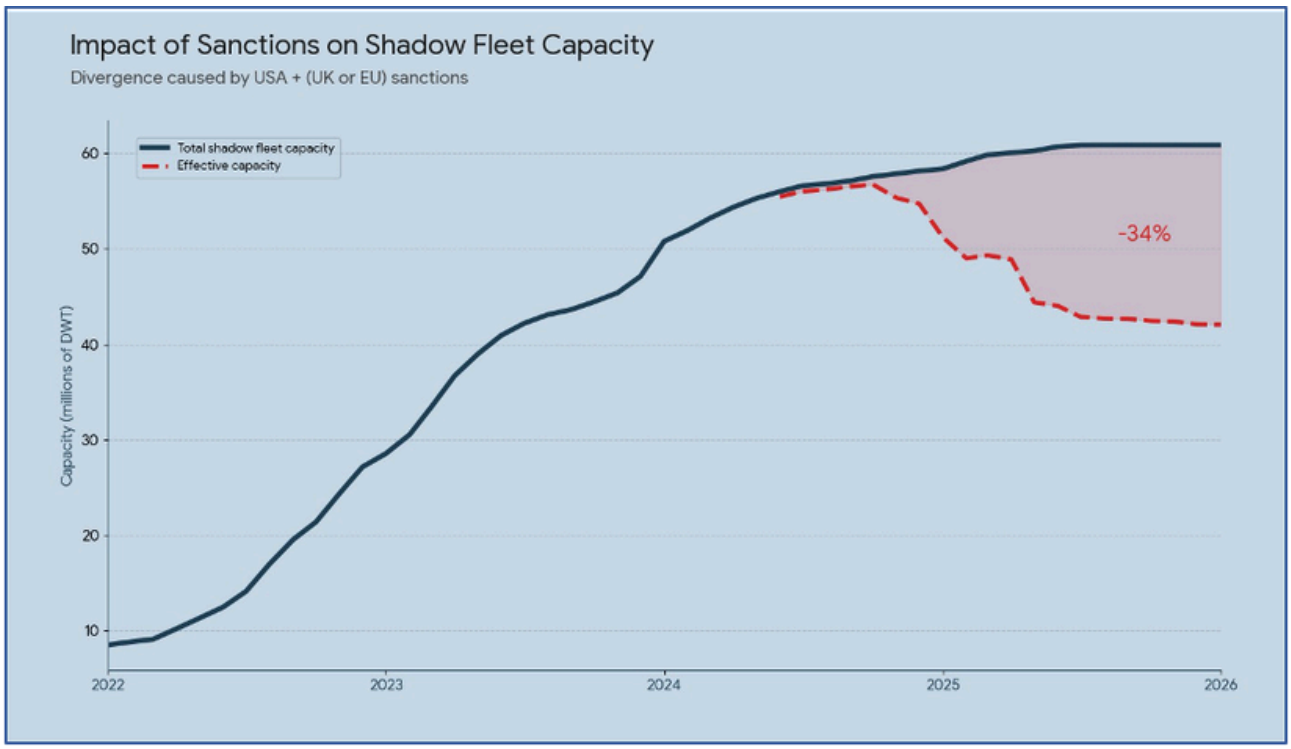
January 2025 jumbo listing of over 180 tankers. These sanctions proved effective because major buyers, especially Indian refiners, refused to accept cargoes delivered on blacklisted tankers to preserve access to the mainstream financial and insurance ecosystem.[6]



Source: Dataset

This shift in strategy created a sharp and widening divergence between the total shadow fleet size and the usableshadow fleet, as blacklisted vesselswere rendered inactiveand unable to serve major markets. Consequently, Russia was forced to withdraw sanctioned tankers and find clean alternatives[7], exposing a fundamental structural vulnerability in its maritime strategy. This constant need to replace sanctionedassets fuels persistent logistical instability, ensuring that the fleet's overall efficiency remains highly sensitive to targeted measures against specific vessels.

The operational impact of these sanctions was already apparent by early 2025, leading to a steady erosion of performance. By early 2026, the fleet's effective operational capacity had suffered a 34% reduction in terms of deadweight tonnage (DWT) compared to its total theoreticalcapacity. Further compounding this decline is a heavy reliance on aging vesselsprone to breakdowns and the reduced availability of second-hand tankers due to tighter regulations on sales. Together, these constraints continue to restrict Russia'sability to replaceoutdated units and sustain its long-term export capacity.



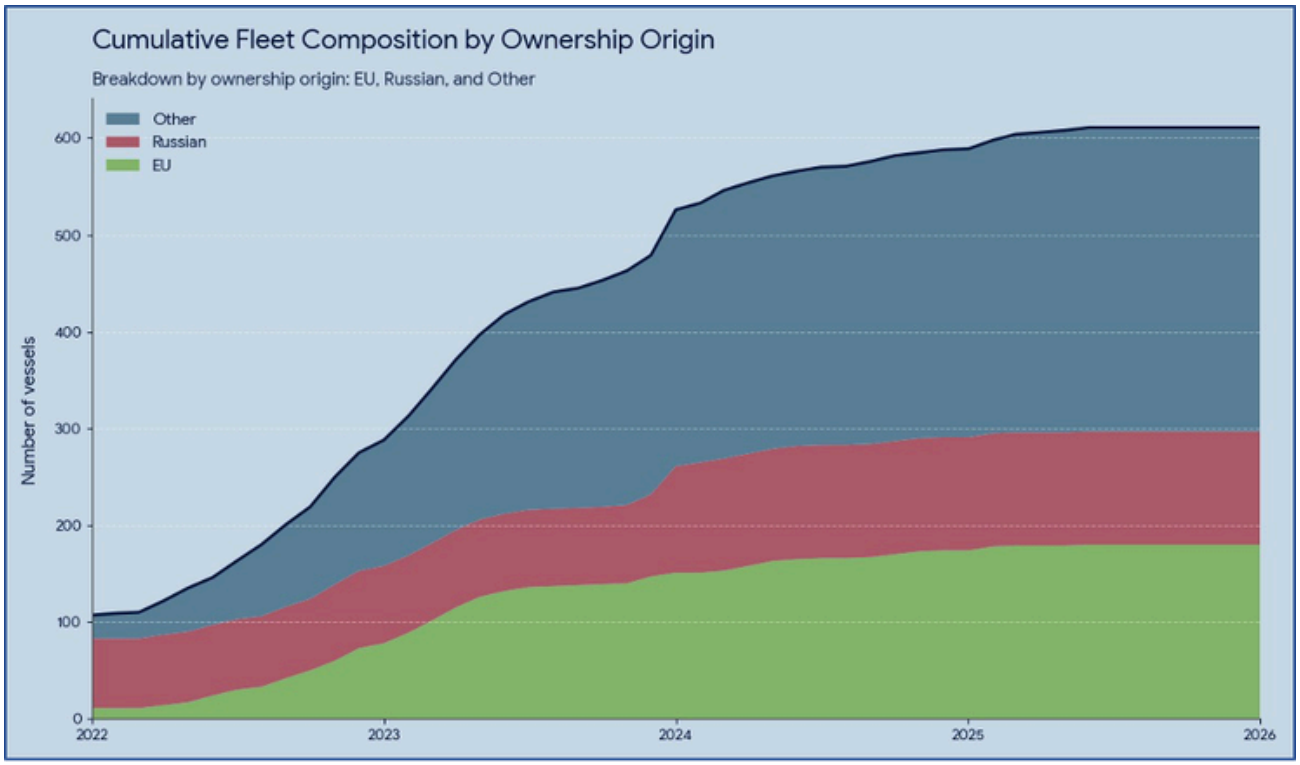
Source: Dataset

4. Technical, Legal, and Organizational Profile

The structural transformation of Russia's maritime logistics reflects a fundamental shift from service dependency to direct vessel ownership. Prior to the 2022 invasion, Russia relied primarily on spot chartering, a model based on hiringtankers on avoyage-by-voyage basis.This system was highly efficient due to the geographical proximity of Russian terminals to major import markets in Europe and China. While Moscow also utilized time chartering and direct ownership through the state linked company Sovcomflot, these methods played a secondary role compared to the flexibility of the spot market.[8]

Following the imposition of 2022 sanctions, this model became unsustainable. Mainstream tankers compliant with the price cap began to refuse Russian crude, leaving exporters with a critical lack of capacity. Initial attempts to recruit vessels from the existing global shadow fleet servicing Iran and Venezuela saw limited success, as only 11% of Russia's shadow fleet had prior experience in those specific trades. Furthermore, many existing shadow tankerowners were reluctant to commit their vesselsexclusively to Russian trade, forcing Moscow to pivot toward a strategy of outright vessel purchases. These acquisitions were conducted through opaque shell companies registered outside the EU and G7 jurisdictions, which systematically dropped International Group (IG) P&I insurance coverage to render the ships sanction-proof against entity-level measures.[9]

The large-scale acquisition of second-hand vessels has since become the defining feature of this logistical system. These ships, often nearing the end of their commercial life, were purchased at relatively low costs to be repurposed for high-risk trades. This massive transfer of assets was facilitated by sellers eager to extract residual value from aging tonnage that was increasingly being rejected by mainstream markets due to stricter safety and insurance standards.

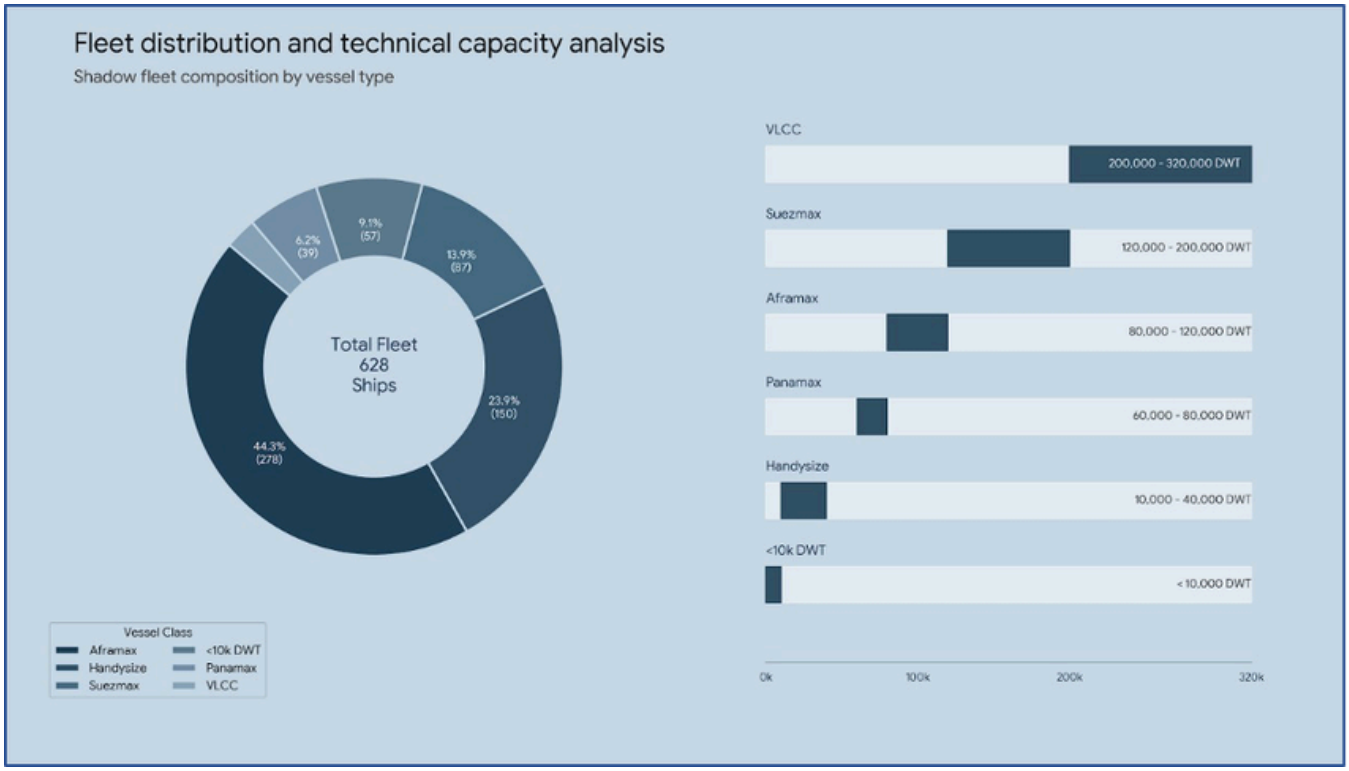


Source: Dataset

While a portion of the fleet originated from Russian owners like Sovcomflot, a substantial share was sourced from European companies. Greek shipowners, in particular, played a decisive role in offloading aging tonnage into this network. By March 2025, approximately one third of the shadow fleet had previously belonged to European owners. According to data from the Brookings Institution, nearly 70% of these tankers of European origin were Greek before entering the shadow trade, highlighting Greece's pivotal role as a primary supplier of second-hand tonnage.[10]

The strategic transition toward direct ownership has resulted in a fleet profile precisely calibrated to meet Russia's logistical export requirements. Nearly two thirds of the network is dedicated to crude oil transport, while the remaining third is specialized for the movementof refined petroleum products.

From a technical perspective, Aframax and Suezmax vessels form the structural backbone of this maritime network. Aframax tankers, in particular, constitute nearly half of the entire fleet, a dominance justified by their operational versatility and their compatibility with major loading terminals. Suezmax units represent the other significant component of the network, providing the necessary scale for larger volume shipments on long-haul routes.This specific combination of vessel classes enables a flexible management of trade routes, ensuring efficient coverage for both regional markets and long-haul voyages to emerging commercial destinations.



Source: Dataset

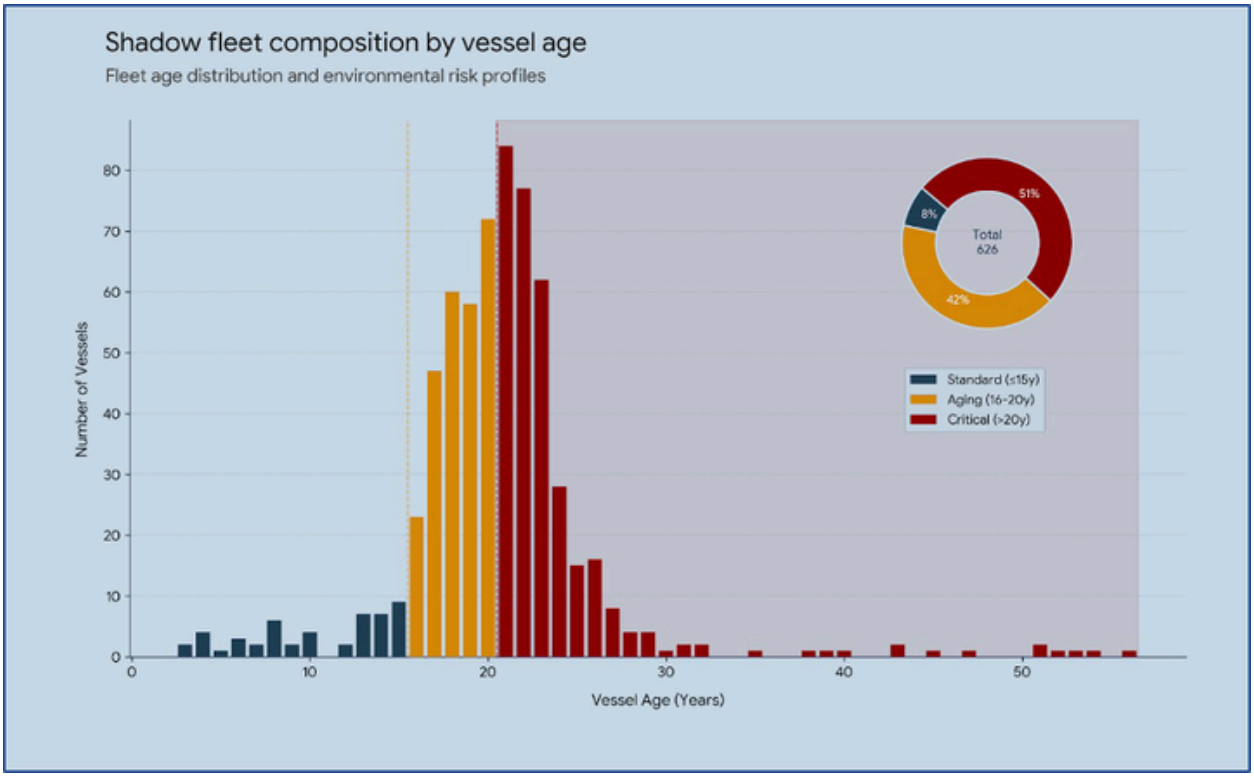
The technical risks associated with this fleet are substantial, largely driven by the advanced age and deteriorating condition of the vessels. While the average age of the global crude tanker fleet is approximately 13 years[11], the Russian shadow fleet averages 20 years, a threshold where structural fatigue becomes a critical concern. Under the IMO's Enhanced Survey Programme (ESP), vessels exceeding 20 years are subject to demanding annual checks specifically designed to ensure their hulls and internalstructures remain seaworthy.[12]

The fact that most shadow tankers bypassthese rigorous inspections explains why they are significantly more prone to accidents compared to the global fleet. By operating outside these established safety frameworks, these vessels can conceal serious mechanical or structural defects that would otherwisebe identified and repaired.

Consequently, the reliance on an unverified and aging fleet creates a persistent danger of engine failures or catastrophic structural collapses during transit.

The operational resilience of this system is built on a synergy between offshore shell companies and permissive maritime registries. Shell companies provide legal insulation to obscure beneficial ownership, while the frequent rotation of flags remains the primary tactical tool to evade detection. Ownership is highly concentrated in strategic offshore hubs like the United Arab Emirates, Seychelles, and China. Regardingregistries, the fleet continues to rely on deep grey jurisdictions such as Sierra Leone, Cameroon, the Gambia, and Guinea to maintain operational opacity.

Increased international pressure has recently altered this legal landscape across multiple jurisdictions. A prominent example is Panama,

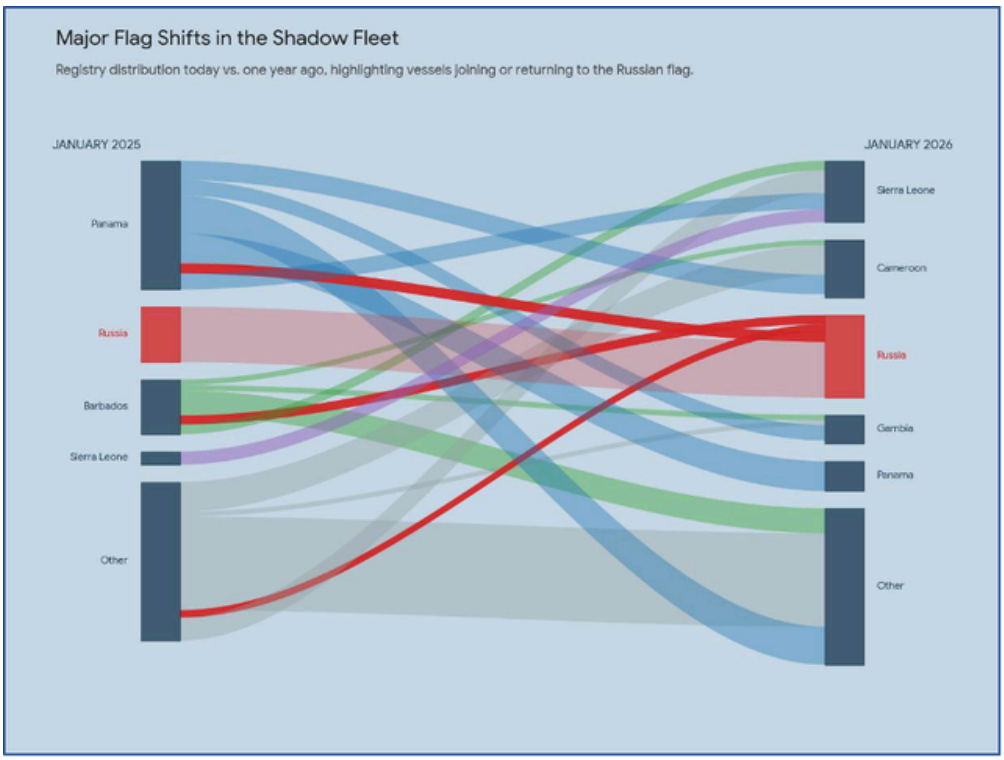


Source: Dataset

once the primary hub for the shadow fleet with over 160 vessels, whose share collapsed to just 46 units by early 2026. This tightening of oversight across various traditional registries has forced the network to rely on even more permissive flags or, in a more recent and minor shift, to move toward the Russian national flag. This transition marks a significant tactical departure: while Russia previously prioritized disguising ownership through a wide array of foreign jurisdictions, it has recently made that association obvious for specific tankers where administrative evasion is no longer convenient or viable. For this limited subset, Russia is prioritizing state-backed security over the convenience of secret ownership, transitioning these vessels from a tactic of concealment to one of open state association.

Within this nationalized subset, which consists of approximately 66 tankers, the majority adopted the Russian flag in 2024 and 2025 after cycling through multiple foreign registries. Crucially, nearly 90% of these vessels are under active sanctions from the US, UK, or EU, suggesting that the national registry is utilized primarily when options across the global registry system are exhausted. For these sanctioned vessels, the use of the national flag marks a strategic shift from concealment toward overt state association and explicit non-compliance with Western enforcement.

Under this model of sovereign deterrence, Western enforcement risks escalating commercial actions into direct diplomatic or military confrontations. Furthermore, the national registry enables Moscow to provide military escorts and frame asymmetric threats, such as drone attacks in the Black Sea, as aggressions against sovereign territory. While this strategic shift toward the national flag remains a limited phenomenon, it represents a potent alternative for the future as traditional evasion becomes increasingly difficult. Nevertheless, most of the shadow fleet remains in offshore jurisdictions, where it operates with near-total opacity and without any real accountability for its owners.



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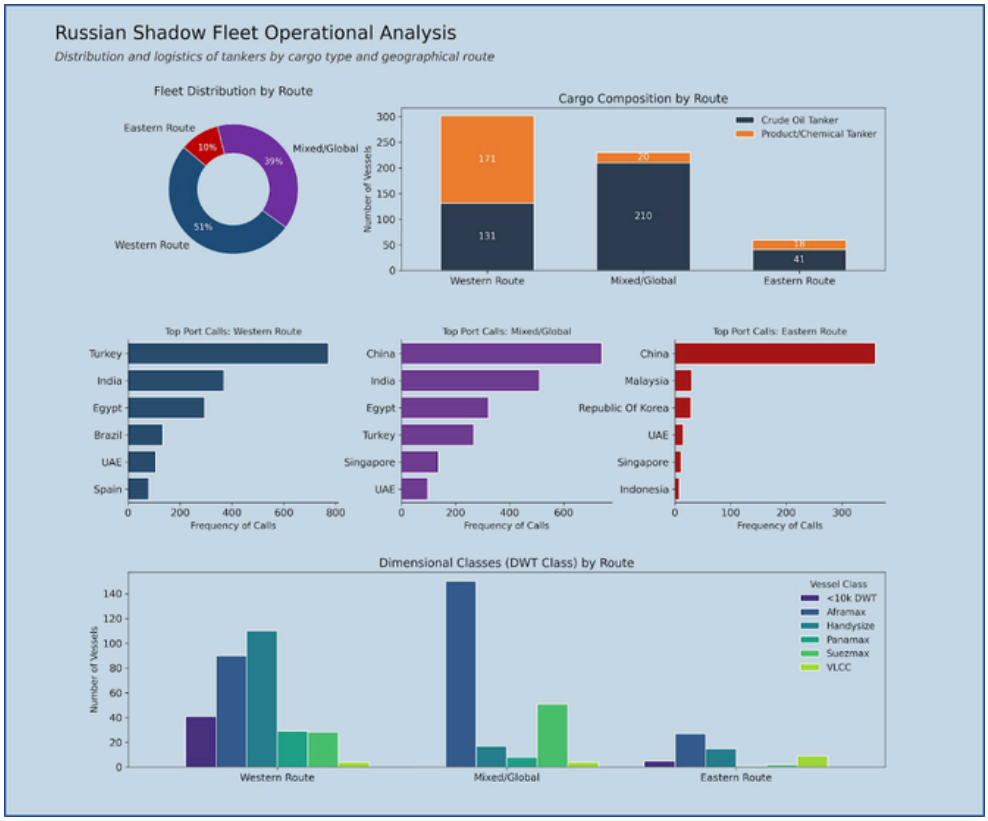
5. Logistical Geography and Strategic Maritime Corridors

The logistical geography of Russia's shadow fleet is defined by a radical redirection of oil flows away from short-haul European routes toward distant markets in Asia and the Global South. This shift has forced a sustained reliance on longer, more complex, and inherently riskier maritime corridors. Before 2022, the majority of Russia's seaborne exports moved through brief voyages across the Baltic Sea into NorthernEurope or via the Black Sea into the Mediterranean. This proximity minimized fleet requirements and reduced exposure to strategic chokepoints. However, the EU embargo dismantled this traditional geography, forcing Moscow to reorient its entire trade infrastructure eastward and southward.

The Baltic Sea remains the primary starting point for this logistical chain, particularly through the ports of Primorsk and Ust-Luga. These terminals handle the largest volumes of crude and refined products carried by the shadow fleet. In the first half of 2024, more than 40% of Russia's seaborne oil exports departed from Baltic and Black Sea ports on shadow tankers, with that share peaking at over 80% for Baltic ports alonein April of the same year. These ports serve as the main launching pads for long-haul voyages to India and China, with most tankers exiting via the Danish Straits. Transits by shadow fleet vessels through these straits have risen almost threefold compared to pre-war levels.While many shipscontinue through the English Channel,an increasing numberhas begun to take a wider route around Britain and Ireland to reduce surveillance and avoid regulatory risks associated with Western monitoring.[13]

In the south, the Black Sea plays a dual role with Novorossiysk as its principalhub. This port, Russia's largest in the region, channels exports to the Mediterranean via the Turkish Straits and provides essential access to secondary markets in Turkey and the Middle East. Complementing these routes, the Suez Canal has emerged as a pivotal artery for the shadow fleet. A high proportion of southbound flows are now dominatedby Russian oil heading to Asian markets, underscoring how criticalEgypt's neutrality and the Canal's exemption from Western enforcement are to Moscow's strategy. In 2023, approximately 65% of eastward flows through the Suez Canal originated from Russia.[14] China and India have consolidated their positions as the primary destinations for the shadow fleet's long-haul shipments. Chinese imports are concentrated in major ports such as Qingdao and Ningbo. While the Northern Sea Route is occasionally utilized during summer months, the vast majority of flows rely on the Suez Canal or the Cape of Good Hope.

These routes tie up tonnage for extended periods, significantly increasing logistical demand and reinforcing the shadowfleet's role in sustaining exportsto China. Similarly, India's west coast refineries, notably Jamnagar and Vadinar in Gujarat, have become critical nodes. By 2024, an estimated72% of India's Russian crude imports were transported on shadow tankers, highlighting New Delhi's reliance on these logistics to secure discounted barrels.[15]



Source: Dataset

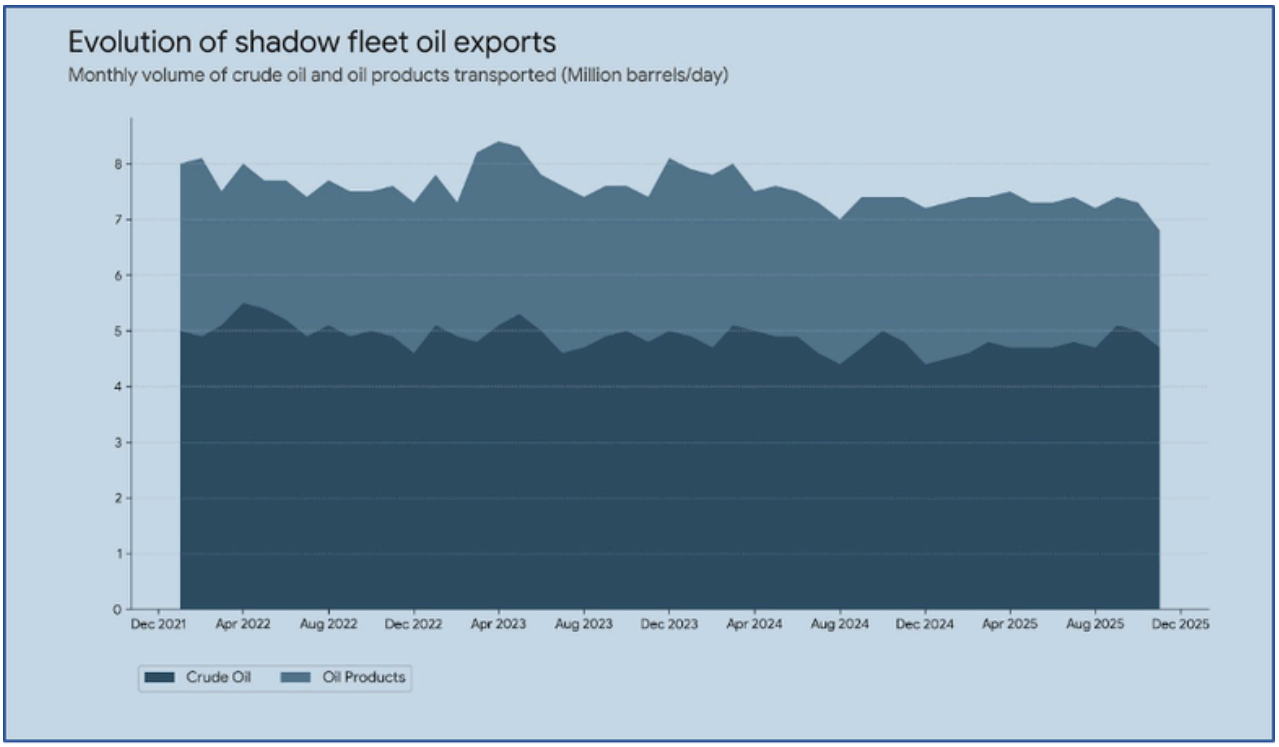
To support these extendedroutes, strategic ship-to-ship (STS) transfer hubs have consolidated along the export corridors. Offshore Ceuta, a Spanish exclaveon the North African coast,served as a major hotspot until mid-2023, when Spanish regulatory restrictions forced operations to relocate to more distant Atlantic waters.[16] These activities shiftednotably toward the Canary Islands and Cape Verde, which together accountedfor roughly 44% ofUrals crude transfers byMay2023.[17] Meanwhile, the Laconian Gulf near Kalamata,Greece, has retainedits role as a criticalSTS site, frequently serving as a popularlocation for loading Russian oil products.[18]

These logistical operations are systematically facilitated by the manipulation of the Automatic Identification System (AIS). Approximately 95% of shadow fleet tankers have reported shutdowns of AIS transponders, a practice that enables vesselsto conceal their exact routes, obscureSTS transfers, and hide port calls. This widespread reliance on dark activity indicates that concealment at sea is no longer a temporary tactic but a structural component of the fleet's business model.

While Western monitoring efforts increasingly focus on these chokepoints and transfer hubs, Russia benefits from the fact that many of these locations sit outside directWestern jurisdiction. This limited enforceability reinforces the shadow fleet's operational resilience. However, the heavy reliance on longer routes, fragile chokepoints, and risky transfer practices amplifies Russia's long-term vulnerability. Any significant disruption in the Suez Canal, new Turkish maritime restrictions, or coordinated enforcement in STS hotspots could sharply curtail the effectiveness of the shadow fleet, especially givenits aging condition and the limited number of available tankers to replace sanctioned units.

6. Economic Implications

Russia's crude and oil products exportvolumes have remained remarkably stable from the beginning of the invasion through early 2026, despite unprecedented sanctions pressure. This stability was made possible by the central role of the shadow fleet, which at its peak was responsible for carrying more than 90% of Russia's crude oil exports. These flows preserved a vital revenue stream for Moscow, even though this share began to decline in 2025 due to the increasing effectiveness of vessel-specific sanctions.



Source: KSE

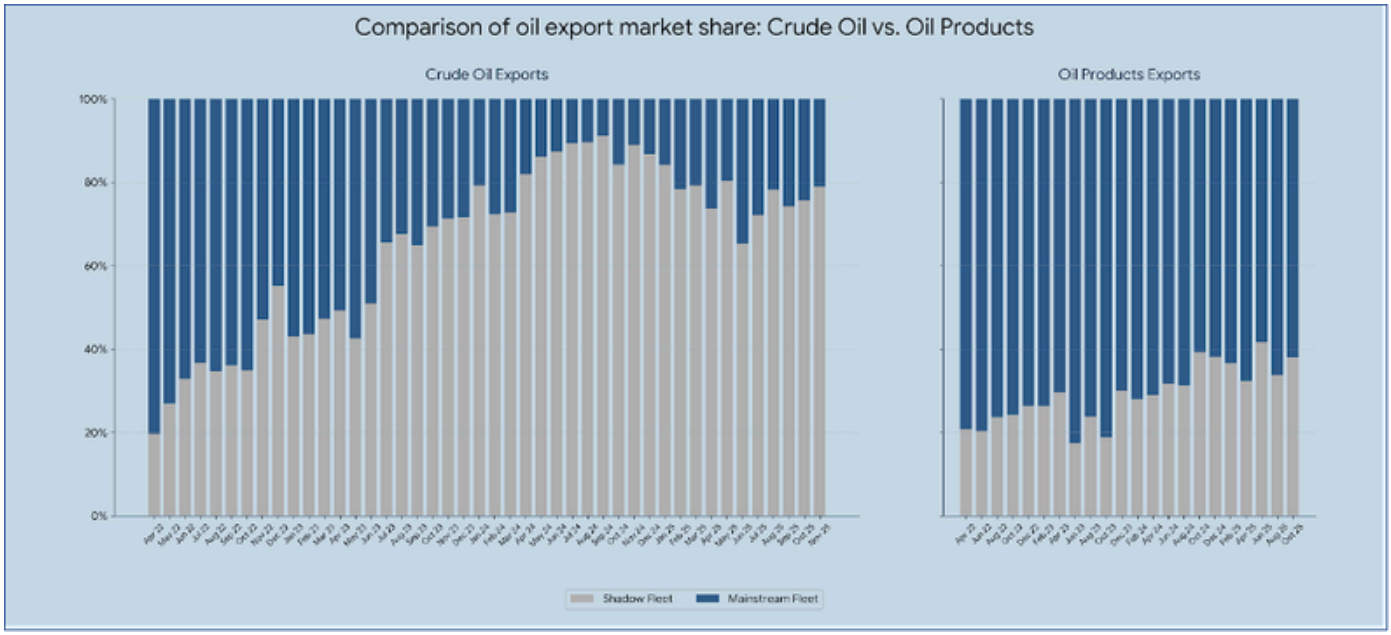
While some analysts attribute the 2025 reduction in shadow fleet reliance to the fall in Russian crude prices, which narrowed the gap with the G7 price cap, the primary factor was the targeted sanctioning of individual tankers.[19]

This interpretation is supported by the fact that the shadow fleet's share in Russian exports began to contract before oil prices fell significantly. Moreover, since shipping contracts and voyages are arranged months in advance, they cannot react instantaneously to price fluctuations, suggesting that the sudden withdrawal of ships was a direct consequence of international blacklisting rather than market movements.

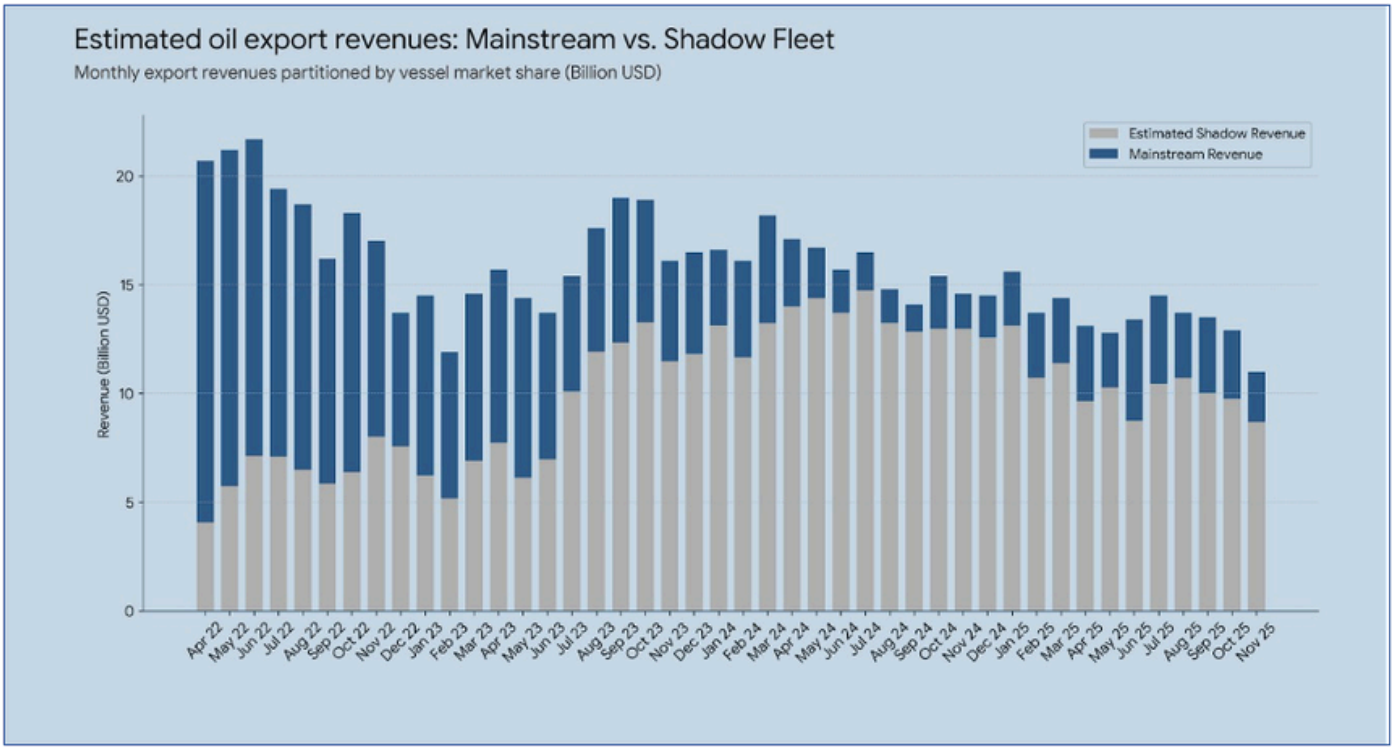
The resilience of export volumescan be interpreted as evidenceof the price cap's strategic effectiveness. The mechanism successfully kept Russian oil on the global market, preventing supply shocks, but ensured it was sold at a significant discount. According to the Kyiv School of Economics (KSE), which employed a difference-in-differences approach treating the invasion as an exogenouspolicy shock for prices, Russialost an estimated 166 billion USD in oil revenues between March 2022 and January 2026.

The bulk of these losses were concentrated between March 2022 and August 2023, when the gap between Brent and Urals crude was at its widest.[20]

At the same time, the shadow fleet played a crucial role in containing these losses, as from mid-2023 it became the primary channel sustaining Russia's oil export revenues despite Western pressure.



Source: KSE



Source: KSE; Dataset.

Although export volumes remained stable, total revenues experienced a significant decline driven by multiple overlapping factors. These included the global downturn in oil prices after the initial post-invasion spike, the closure of the more profitable European market, and the forced redirection of flows to buyers in India, China, and Turkey at discounted rates. Longer voyages to Asian markets imposed higher logistical costs, as tankers were tied up for extended periods, reducing turnover and increasing the fleet size needed to maintain export volumes. Simultaneously, the reliance on aging shadow fleet tankers raised operational expenses due to higher maintenance requirements, greater fuel consumption, and an increased risk of mechanical failures. These structural inefficiencies have effectively created a permanent tax on Russia's energy exports, eroding the overall profitability of the trade.

7. Environmental and Maritime Safety Risks

The environmental threat posed by the shadow fleet stems from the technical vulnerabilities already discussed, primarily the combination of an aging fleet and a persistent insurance gap. By operating outside the International Group of P&I Clubs, 85% of these tankers rely on undercapitalized or opaque insurance structures. This creates a systemic liabilitygap, effectively transferring the financial burden of potential cleanups to coastal states. These risks are exacerbated by hazardous practices such as ship-to-ship (STS) transfers and the systematic disabling of AIS transponders, which compromise maritime safety and turn large tankers into navigational hazards. These risks have already transitioned from theoretical concerns to documented reality. Since 2022, more than fifty maritime incidents have been linked to shadow operations, including onboard fires and mechanical failures.[21]

Beyond major accidents, satellite monitoring has identified a pattern of chronic illegal pollution through oily slicks.These discharges, often involving oily slops in violation of MARPOL (the International Convention for the Prevention of Pollution from Ships), allow operators to cut costs while exploitingopaque offshore ownership structures to evade legal accountability.[22]

The potential for a large-scale catastrophe is particularly acute in semi-enclosed environments like the Baltic and Black Seas, where limitedwater circulation makes ecosystems exceptionally vulnerable to long-term damage. Estimates suggest that a major spill involving an Aframax tanker could incur cleanup costs exceeding 1.5 billion USD, a staggering liability that local economies and coastal communities would likely have to bear.[23]

Furthermore, the presence of the shadow fleet destabilizes established norms of maritime governance. The threat of secondary sanctions creates legal uncertainty for legitimate salvage companies and tug operators, who may hesitateto intervene duringan emergency for fear of regulatory repercussions. This uncertainty can delay critical response times, potentially turning manageable mechanical issues into major environmental disasters. Ultimately, the shadow fleet functions as a systemicsafety hazard that externalizes all risks

while forcing the international community to assume the ecological and financial stakes of Russia's sovereign evasion tactics.

8. International Countermeasures and Enforcement Gaps

Since late 2023, the United States, European Union, and United Kingdom have fundamentally reshaped their strategy by shifting from broad entity-level sanctionsto surgical vessel-level designations. By blacklisting hundreds of individualtankers, international regulators have forced a significant portion of the shadowfleet out of Russian trades,effectively slowing its expansion throughout 2025 and driving up Moscow's logistical costs. This tactical shift was formalized by the PriceCap Coalition's October2024 maritime advisory,which established a new compliance standard for the global industry. By requiring AIS anomaly detection, price-cap attestations, and deep due diligenceon ownership, regulators created a framework that forces the private sector to play an active role in detectingshadow operations.

These regulatory standards were quickly adopted by International Group (IG) P&I clubs and leading insurers, who systematically began denying coverage to opaque or above-cap voyages. This alignment between government policy and the insurance market has made it increasingly difficult and expensive for shadow operators to secure the high-level protection required for major international ports.

Complementing these administrative hurdles, coastal states have reinforced physical control over strategic maritime chokepoints. Nordic and Baltic governments have implemented systematic insurance verification and hull inspections in the Danish Straits, while Spanish restrictions near Ceuta have pushed ship-to-ship (STS) transfers further into the high seas, increasing operational risks for Russian cargoes.

The tightening of these maritime routes has had a direct impact on major buyers, most notably India. By early 2025, Indian state refiners began refusing cargoes delivered on blacklisted tankers or those lacking recognized insurance, as the fear of logistical delays and regulatory repercussions pressured Russia to prioritize "clean" carriers for its Indian deliveries. As a result of this multi-layered pressure, while Russia has managed to keep its total export volumes relatively stable, the shadow fleet's usable capacity has begun to contract. Moscow now operates with narrowed flexibility and faces skyrocketing costs, particularly for the long-haul voyages to Asia that serve as its primary economic lifeline.

Despite these gains, substantial tactical enforcement gaps remain due to jurisdictional blind spots in international waters and Suez Canal transits, the rapid "ownership and flag cycling" that outpaces regulatory updates, and the use of sophisticated AIS spoofing alongside a parallel non-Western insurance ecosystem that operates entirely outside G7 oversight. Recognizing that these maritime evasions are difficult to eliminate entirely at the tactical level, the coalition's strategy has evolved toward a broader economic blockade. By early 2026, the cumulative effect of designations against major

Russian energy companies reached a critical threshold, with nearly 80% of Russia's total oil output now produced by sanctioned entities.[24]

This strategic pivot also targets the buyer-side infrastructure. A landmark move in this direction was the recent designation of a major Chinese refiner for importing Russian oil on blacklisted vessels. By targeting a non-Russian, third-country entity for the first time, Western powers are leveraging access to their own markets to deter global players from sustaining the shadow network. Crucially, the coalition has moved to close the "refining loophole" that previously allowed Russian crude to reach Western markets under new labels. In January 2026, the EU and UK introduced a ban on imports of refined products from any refinery processing Russian oil. This measure removes the primary incentive for countries like India and Turkey to process Russian crude, as the resulting products can no longer be legally sold into the world's largest markets.[25] However, the actual enforceability of this ban remainsa significant challenge. Proving the origin of crude oil once it has been molecularly transformed during the refining process requires a level of transparency and chemical auditing that many third-country hubs are currently unable or unwilling to provide. Without a rigorous, internationally recognized system for tracking feedstock, there is asubstantial risk that the ban will be bypassed through the strategic blending of Russian and non-Russian crude, effectively diluting the sanctions' impact.

Moving forward, the ultimate effectiveness of these measures will depend on a closer alignment of vessel lists and the implementation of real-time insurance verification at key chokepoints. This must be combined with secondary sanctions on the broader "enabling ecosystem," including brokers and non-IG insurers, to dismantle the administrative infrastructure that allows the shadow fleet to survive. In this context, expanded cooperation with major global buyers is essential to transition from ad hoc cargo refusals toward a permanent, institutionalized policy.

This transition is not a final fix, but a dynamic effort to stay ahead of a network that constantly pivots to exploit new jurisdictional gaps. The long-term impact of these measures will depend on the international community's capacity to enforce a unified maritime order. By raising the financial costs and legal liabilities to the point where the shadow trade is no longer profitable, the coalition can force the market back toward a system where safety and transparency are the non-negotiable standard.

9. Conclusions

The evolution of the Russian shadow fleet is more than a tactic of evasion; it is a continuous cycle of strategic adaptation and regulatory pressure. When international measures are ambitious but operationally vague, they do not contain the phenomenon. Instead, they provide the time and incentive for a sanctioned state to industrialize opacity, consolidate logistical capacity, and transform occasional concealment into a permanent, parallel infrastructure.

Russia exploited this initial regulatory gap to build an evasionarchitecture based on offshore ownership and dark operations, maintaining

export continuityunder mounting pressure. However, this trajectory ultimately exposes a fundamental limit of sovereign power. A state can replicate the hardware and services, such as vessels,intermediaries, and even an alternative insurance ecosystem, but it cannot command the systemic credibility, or the software, embedded in the global infrastructure of trust. This infrastructure, comprising mainstream finance and the compliance pathways that major buyers consider indispensable, remains a Western monopoly that a sanctioned state cannot easily replace.

This deficit of credibility is precisely what transforms market exclusion into an effective instrument of economic warfare. Because Russia cannot provide a viable alternative to Western financial security, the threat of secondary sanctions serves as the coalition's most potent weapon. Recent designations of third-country refiners mark a critical transition, forcing market actors into a binary choice: the short-termgains of discounted crude versus the long-term necessity of access to the global financial core. However, this remains a strategic gamble.To be effective, secondary sanctions must be balanced against the risk of diplomatic friction and market instability, ensuring that this form of economic pressure does not trigger a broader fragmentation of the global order.

To maintain this momentum, the international community must ensure that the shadowfleet remains a fragile and dangerous asset. Although vessel-specific designations have already begun to reduce the effective size of the fleet, the network remains resilient. To ensure the threat of secondary sanctions remains credible, a deeper level of coordination is required between the key members of the international coalition. Partners must systematically share and align their sanction lists so that blacklisted vessels are designated by all parties simultaneously. This unified front is essential to make these vessels as toxic as possible, ensuring that no major international actor can handle them without risking total systemic isolation.

Beyond the immediateeconomic impact, the shadow fleetleaves a corrosivemark on global maritime governance. The normalization of substandard vessels and opaque registries transfers environmental and safety risks onto coastal states, creating a systemic normative debt that will persistlong after the current conflict. The final neutralization of this network will ultimately depend on the continued ability of the international community to prove that the integrity of the maritime order is more valuable than the diminishing returns of a high-riskparallel market.

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