Sanctions and Fragility: The Case of UAC

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3 Main points:

Introduction: why UAC matters

Since 2022, Russia has rapidly shifted toward a war-oriented economy, marked by a sharp increase in defence spending both in absolute terms and as a share of GDP. Defence outlays rose from 3.6% of GDP in 2021 to an estimated 7.1% in 2024, crowding out civilian expenditure and re-orienting industrial capacity toward military production (Buklemishev, 2024).

Table 1.

Russian defence expenditure

Source: Buklemishev, 2024.

This shift has occurred under unprecedented Western sanctions targeting high-technology (e.g. semiconductors, flight sensors, etc.) and dual-use imports (European Commission, 2025). The central question is whether Russia's defence industry can sustain production under these constraints —or whether it survives primarily through state intervention rather than market viability (Dabrowska, 2024). In large part, this is due to Chinese suppliers, operating under the supervision communist party (Popova, 2023) and by practicing parallel importing through other third countries (Feldstein & Brauer, 2024), such as Turkey for instance.

Macroeconomic data provides insight into the development of the Russian economy, but detailed and reliable microeconomic statistics are not accessible (Interfax, 2022). This information gap is addressed by the present article by examining the United Aircraft Corporation (UAC), which is the largest Russian defence company. The research scope consist of two dimensions: supply-chain exposure and financial sustainability alongside the following research questions:

Together, these questions assess whether observed supply-chain configurations and financial outcomes indicate a viable, self-sustaining operation or a firm whose survival is increasingly state-engineered rather than market-driven (Suhaimi & Mokhtar, 2023).

The significance of imports

As far as the domestic economy landscape is concerned, Figure 1 shows the import dependency of the Russian economy in the second quarter of 2022. Usually, countries that specializes in natural resources extraction or agricultural production tend to be the relatively more import-dependent. This is true of Russia as well as showcased by the figure.

Figure 1.

Import dependency of selected Russian industries in Q2 2022

Source: Trefilov, 2022, own editing.

According to the survey of the Gaidar Institute (2019), approximately one in four Russian companies made serious efforts to reduce their dependency on foreign products. Import substitution was also promoted by the state (e.g. Resolution No. 102/2015). Certain heavy industries (armament, nuclear energy) are in domestic ownership and under domestic control (Seremet, 2023). Although the supplier basis of the respective companies are already foreign firms as exemplified by Figure 2.

Figure 2.

High tech military component suppliers to Russian missile manufacturing and their turnover in 2023 in millions of RUB

Source: Rhodus Intelligence, 2025, own editing.

Russia's critical dependency on Western digital infrastructure had been evident therefore, the withdrawal of Oracle, SAP, IBM, and Microsoft from the Russian market was a hard hit (Pravda.com, 2024). In response – and not as a preventive measure, – the Russian Presidency issued a decree (No. 166/2022) excluding Western IT service providers from operating in critical infrastructure sectors such as railways, energy, communications, banking, mining, and servers storing classified information.

Thesis

This article argues that United Aircraft Corporation (UAC), remains structurally dependent on foreign inputs and financially fragile. Despite adaptation efforts, UAC's survival increasingly reflects state engineering rather than a self-sustaining response to sanctions. The analysis in the two sections below test this claim. Methodologically, UAC is an ideal case study: it is Russia's largest defence manufacturer, a core supplier to the military, and one of the few firms for which partial supply-chain and financial data remain accessible.

Evidence I: supply-chain exposure under sanctions

What "import dependence" means in this article? Import dependence here refers to foreign involvement in UAC's supplier base, measured using Bloomberg's supply-chain mapping. Specifically: the frequently cited "Western reliance" refers to the share of supplier facilities located in countries classified as Western or Western-aligned (EU member states, the United States, the United Kingdom, Switzerland, Japan, South Korea, and Taiwan). Classification is based on facility location, not ownership or nationality of shareholders. This distinction matters: firms may be legally domiciled in Russia while remaining technologically dependent on foreign production, tooling, or know-how.

What Bloomberg supply-chain data captures—and what it misses? Bloomberg's supply-chain mapping (Figure 3) identifies known, formal relationships between firms (suppliers, customers, competitors) based on disclosures, customs data, and corporate reporting. As for interpreting inventory signals (colors of the companies' names), Bloomberg's supply-chain chart shows more suppliers increasing than decreasing inventories between April 2024 and April 2025. Rising inventories can reflect expectations of sustained demand, but in a sanctioned economy they may also indicate bottlenecks in downstream assembly; difficulties matching supply with volatile state orders; or overproduction driven by administrative targets rather

than market signals. On the customer side, inventory declines—particularly among Chinese entities—suggest that demand is being absorbed faster than production can adjust, reinforcing inflationary pressures and dependence on state stockpiling. The takeaway is that UAC's supply chain has adapted tactically but not structurally; foreign inputs remain embedded, and state demand masks underlying fragility.

It captures only tier-1 suppliers and customers, while does not consider parallel imports; informal intermediaries; state-to-state procurement; classified military transactions. As a result, Bloomberg data likely understates, rather than overstates, Russia's true foreign exposure.

Figure 3:

Supply chain of United Aircraft Corporation, April 2025. Firms are Russian unless specified otherwise.

Source: Bloomberg, own editing.

Figure 4 presents the geographical exposure of UAC from the supplier side and Figure 6 from the customers. What the data shows? Even after three years of sanctions, UAC's supplier base remains geographically diversified. In 2022–23, 37.5% of supplier facilities were located in Western or Western-aligned economies, with notable exposure to South Korea and Taiwan. One example is Drewloong Precision (Taiwan), which specializes in aircraft engine components—precisely the type of high-precision manufacturing Russia struggles to substitute domestically. This persistence of foreign sourcing highlights a structural constraint: while Russia can reroute trade through intermediaries or encourage redomiciliation, it has not eliminated reliance on external production ecosystems (Simola, 2024, Vinokurova, 2024). Notable that the Russian state is not reported at all, which is quite unrealistic.

Figure 4:

Geographic location of supplier facilities of United Aircraft Corporation, 2022/23

Source: Bloomberg, own editing.

Figure 5:

Geographic location of customer facilities of United Aircraft Corporation, 2022/23

Source: Bloomberg, own editing.

Federal Law No. 290-FZ, aimed to encourage foreign firms to offshore their facilities to Russia. Subsequent amendments (e.g. Federal Law No. 18-FZ of February 2022) offered favourable tax conditions (Ponomareva,

2022). Despite the Kremlin's motivations for domiciliation, it is likely that UAC maintains business partnerships outside Russia.

Evidence II: financial fragility and state dependence

Financial transparency among Russian defence firms has sharply declined since 2022. Under Resolution No. 351, sanctioned or military-linked firms may withhold financial statements (Interfax, 2022). As a result, UAC's post-invasion data is incomplete and uneven. To address this, the analysis combines: Bloomberg semi-annual income and cash-flow data (with documented gaps); moving-average estimates for missing periods; and Russian government expenditure trends as a proxy for demand.

Figure 6 illustrates the quarter-to-quarter evolution of public spending on administration, defence, and social expenses from 2019 through 2024. An upsurge in spending is noticeable following the launch of the war; however, this does not sustain for more than one year. Immense public resources were allocated to public functions, accompanied by a significant outflow of funds to society and administration, consistent with rising inflation in 2022.

Figure 6:

Public administration, defence, social security expenditures, QoQ%

Source: Bloomberg, own editing.

Based on figure 7, profitability collapse after 2022 – UAC's financials show a clear break in 2022. Net income turned sharply negative in most post-invasion periods. Gross margins fell from over 30% in 2021 to low double- or single-digit levels by 2023–24. Only two post-2021 half-years recorded positive net income. This pattern indicates that rising revenues —driven by defence orders—did not translate into sustainable profitability, likely due to higher input costs, inefficiencies, and sanctions-related frictions.

Figure 7:

Income items, millions of USD

Source: Bloomberg, own editing.

Concerning the cash flow and divestment (figure 8), operational cash flow has been volatile and frequently negative. More concerning is persistent negative capital expenditure, which indicates asset sales rather than investment. In practical terms, UAC has been: liquidating assets to cover operating shortfalls; postponing long-term investment (Anankina, 2018); and relying on state transfers to remain solvent. Negative free cash flow across most periods reinforces this picture.

Figure 8:

Cash Flow items, millions of USD

Source: Bloomberg, own editing.

Why state support matters? – but is not enough. Historically, Russian state-owned enterprises invest and pay dividends only when operating cash flow allows. Since 2022, however, UAC's survival appears decoupled from its own financial performance and increasingly tied to defence spending cycles. Yet even state support has limits. Government expenditure data shows large post-2022 fluctuations and hints at future fiscal strain as inflation, social spending, and war costs compete for resources. The bottom line is that UAC is operating, but not on market terms; its financial position reflects state engineering rather than resilience.

Implications: what this means for sanctions monitoring

The UAC case yields three broader implications: sanctions have not forced technological autonomy. Instead, they have shifted dependence toward intermediated and opaque channels. Firm-level survival is not proof of success. Continued production can coexist with financial erosion and long-term decline. Monitoring must move beyond macro indicators. Micro-level supply-chain and cash-flow analysis is essential to distinguish adaptation from artificial support.

Sanctions effectiveness should therefore be judged not by short-term output, but by whether firms remain investable, profitable, and technologically independent over time.

Conclusion

This article examined whether Russia's defence industry has overcome sanctions-induced vulnerabilities through a case study of United Aircraft Corporation. The evidence suggests it has not. UAC remains dependent on foreign technological inputs and financially fragile, with ongoing operations sustained primarily through state intervention rather than market viability.

Answering the two research questions, the conclusions are as follows:

Supply-chain exposure persists despite redomiciliation efforts, and financial indicators point to asset depletion rather than renewal. While Russia has avoided immediate industrial collapse, the UAC case indicates stagnation rather than recovery. In the absence of transparency, competition, and genuine technological substitution, the war economy appears durable only so long as the state can afford to hold it together.

References

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