3 Main Points

Main question: How has UNAC's international supply-chain exposure changed over the past five years amid sanctions? Argument: Despite state efforts, UNAC remains reliant on foreign suppliers, especially for high-tech components. Conclusion The 2022 invasion triggered financial strain, with UNAC divesting assets and relying heavily on government support to sustain operations.

About the Author

Krisztina is pursuing an MSc degree at Lauder Business School in Vienna. Her strongest suits are banking, business analytics, statistics, and project management. She has acquired extensive international experience, which has enhanced her interest in cross-cultural management, politics, and international affairs. Traveling, therefore, is both a passion and an opportunity to observe and become familiar with new things.

War Economy in Practice

This paper is an explorative study, analyzing the largest Russian defense company. The company's supply chains, geographical exposures and selected financial indicators are assessed in detail, putting into context with certain macroeconomic indicators. Two questions are: (1) how the international supply-chain exposure of UNAC changed in the past approximately 5 years and (2) how the invasion in 2022 has impacted some key financial indicators of the firm. The company is subject of several sanctions, including its president, Yury Slyusar (Clifford Chance, 2022). Financial report publication was waived as retaliation (Interfax, 2022a), thus authentic data is missing.

The geography of the supply-chain shows from countries a given company procure tangible inputs or know-how to ensure smooth production. A physical supply chain is considerably inflexible, but also reflects on the sustainability of sourcing (Suhaimi & Mokhtar, 2023). Simultaneously, financial indicators mirror financial health. Two main findings are that UNAC is

still substantially reliant on foreign imports, and its financial “stability” is due almost exclusively to state intervention and partnership.

The Russian economy has been gradually transforming into a war management (Buklemishev, 2024). The defense expenditures by the state clearly ramped up from 2021 both in relative and absolute terms.

Table 1.

Russian defense expenditure

	2021	2022	2023	2024 (estimated)
In absolute terms (trillion RUB)	4,9	7,2	9,3	12,58
Real growth	-5,8 %	27,0 %	24,0 %	29,0%
Share of budget expenditure	10,3 %	12,9 %	16,1 %	18,6%
Share of GDP	3,6%	4,7%	5,9%	7,1%

Source: Buklemishev, 2024.

Macroeconomic perspective

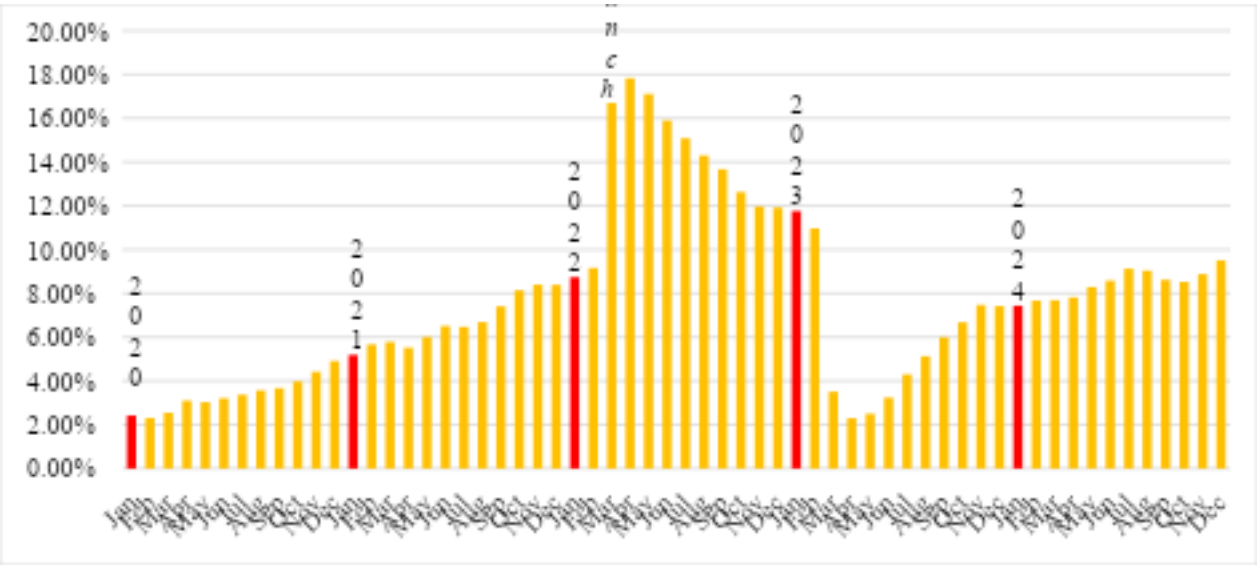
The full-scale invasion against Ukraine started in 2022, the resulting list of sanctions is lengthy, targeting several fronts: financial institutions, technology, natural resources export and imports, media channels as well as private personnel (European Council, 2023). In the last decade, Moscow paid insufficient attention to diversify its export portfolio. In particular, the demand for Russian oil from the European Union and from the United States dropped by 35% and by 60% to March 2022 based on the average of 2021, while globally it decreased by 15% (Attinasi et al, 2022). The diversification of the Russian economy toward Asia, turning it away from the West could not offset the loss of the European market. Russia's share in the import mixes of China and India grew only by 10-15 %. By the end of June 2022, six EU countries completely terminated gas imports from Russia (Attinasi et al, 2022).

The Bank of Russia could effectively manage the situation at the beginning, although as western companies voluntarily withdraw from the country, and importing started to linger, inflation peaked for a whole year approximately (Trading Economics, 2025). Inflation was mitigated by increasing its interest rate from the beginning of February, 2022 from 9,5% to 20%, which continued later too.

Figure 1.

Russian inflation rate between 2020 and 2025

Left hand scale in millions of barrels exported; right-hand scale: USD price difference per barrel



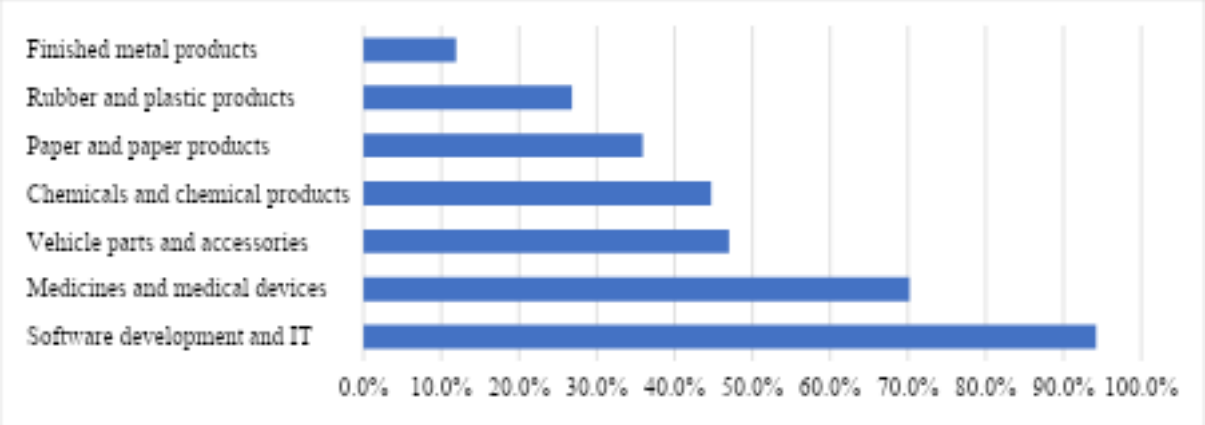
Source: Trading Economics, own editing.

Industry-level perspective

The problems stroke the Russian economy harmed the imports of technological component both for the industry and consumption purposes. Figure 2 shows the import dependency of the Russian economy in the second quarter of 2022.

Figure 2.

Import dependency of selected Russian industries in Q2 2022



Source: Trefilov, 2022, own editing.

In absolute terms, those countries, which are specialized on the extraction and exportation of natural resources and agricultural goods are the most import-dependent. In those states, the machinery and technology, so high value-added products are majorly imported. For example, Siemens operated in and exported key equipment to Russia, making more than 1 billion EUR revenue per year and employed thousands of workers. Electric motors, automation systems, airport machinery, converters and many others were all produced under the Siemens logo (Tadviser.com, 2025), but in May 2022, the company withdrew the country.

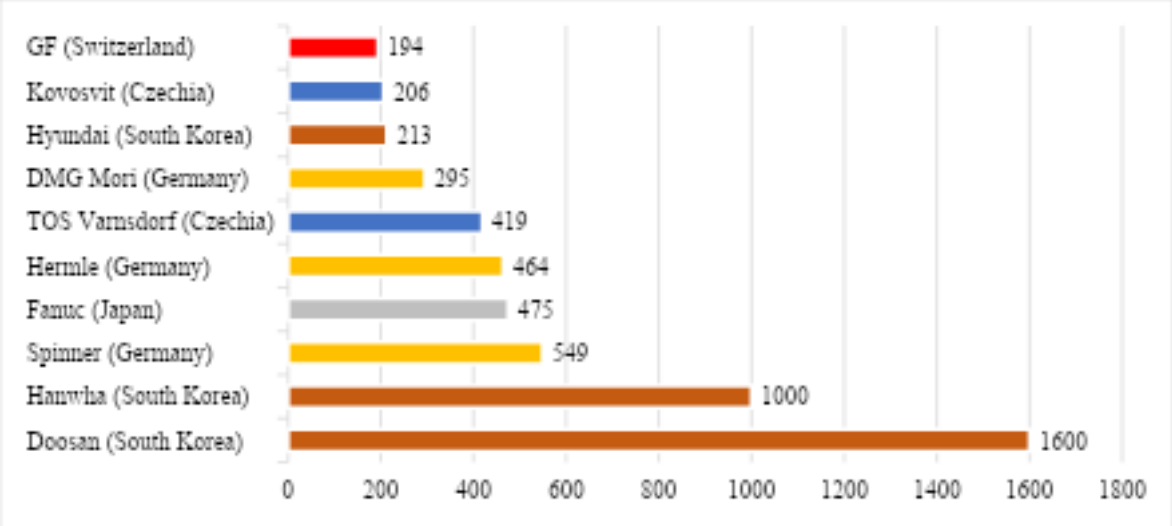
Import substitution is not entirely novel in Russia. After 2014, it gained momentum, but without breakthrough. According to the survey of the Gaidar Institute (2019), in 2015, approximately every fourth Russian company made serious efforts to moderate its dependency on foreign products. In 2018, only every tenth continued to do so. The import substitution was centrally forced as well. See for example: Resolution No. 102/2015. A latent problem was that even domestic production was largely done by foreign firms, especially in the automotive sector.

Certain heavy industries (armament, nuclear energy) are in domestic ownership and under domestic control (Seremet, 2023). Even when it comes to tanks, ballistic missiles, weapons of precision for examples, western equipment are indispensable for manufacturing. Millers, lathe

operators, CNC's are also imported. Figure 3 depicts the top 10 suppliers to the Russian missile manufacturing, exceeding 5 billion rubles turnover in 2023.

Figure 3.

High tech military component suppliers to Russia, 2023, millions of RUB



Source: Rhodus Intelligence, 2025, own editing.

It additionally boosts the expenses if the Russian importer has to pay intermediaries too. Turkey, China, Belarus or the United Arab Emirates are "infamous" transit states. From the above list, only South Korea exports to Russia directly. The top importers are the following: Kaluga (synvhronus electroc motors, drones); Proton-PM (rocket engines); Ryazan (radars); Zaslon (military aviation); Vega-OM (gas turbines); ODK-UMPO (aircraft machines); Mashex-service (technical support); NPO Avrova (naval control system).

In fact, the "hardware" was and is less of a problem compared to the software. Spare part donoring, namely replacing components from non-operational machines into operational ones are common practices and could prolong the useful lifetimes of rare equipment. However, during the Covid, the critical dependency on western digital infrastructure emerged more and

more pressing. Oracle, SAP, IBM and Microsoft left Russia in a few months after the war started (Pravda.com, 2024). The Russian Presidency issued a decree that excludes western IT service providers from critical infrastructure (research, railway, energy, communication, banking, healthcare, mining, space industry) and servers where classified information is stored (No. 166./2022). The fact that president Putin signed this paper only in March may suggest, that the sudden withdrawal of the IT firms caught Moscow off guard. Russian Authorities on the other hand, can authorize procurements even from listed companies, with other words, making exceptions.

UNAC supply chain analysis

The company realized 4,41 billion EUR revenue in 2024 from the aerospace and defense sector, which accounts for 87% of its total. This result of United Aircraft Corporation (UNAC) is by far the highest one in this branch, the second one in line is Yakovlev, which realized 2,35 billion EUR, the third one is Rostvertol reported less than 0,6 billion EUR. UNAC executed two acquisitions, supposedly in preparation of the war: it acquired MiG Corp. and Sukhoi in December 2021 (Interfax, 2022b). After the launch of the war, the CEO of UNAC, Yury B. Slyusar was personally sanctioned by several countries, including New Zealand, Australia and the United States (Office of Foreign Assets Control.org, 2025).

The supply chains flow chart depicts three groups of companies, suppliers, customers and competitors (Figure 4) based on Bloomberg's assessment. The coloration of the companies' names tells whether the value changes of their inventories were positive (green), negative (red) or neutral (black) from April 2024 to April 2025. For example, if the inventory of a supplier increases, that means the supplier is expecting a rising demand in the near future but it can also suggest sales problems.

Sudden surges or drops in demand can hardly be tracked down by production swiftly. Instead, abrupt price movements occur, which can also destabilize the system and cause uncertainty. On the graph, each firm is Russian if not indicated otherwise and represents the situation as of April 2025.

Figure 4:

Supply chain of United Aircraft Corporation, April 2025.

Source: Bloomberg, own editing.

Generally, we see more green highlights then red ones. Suspectedly, the entire global defense industry is anticipating rising demand and therefore intensifies operation, build up capacities to absorb also governmental funds. Most players in the chain are Russian enterprises, except from the competitor box, where Asian and NATO countries are represented.

On the suppliers' side, we can see that most Russian suppliers increased their inventory last year. The intensification of the Russian defense activity cannot be surprising as the whole economy is transforming gradually to war management. For example, they operate in 24/7. The

isolation of the Russian (defense) economy and wartime efforts entail some rather adverse consequences from a macroeconomic perspective. The pregnant state involvement and the faded competition does not incentivize innovation. Moreover, as mentioned above, supply chains were disrupted, western state of art technology suppliers are hardly accessible for Russian producers (Simola, 2024).

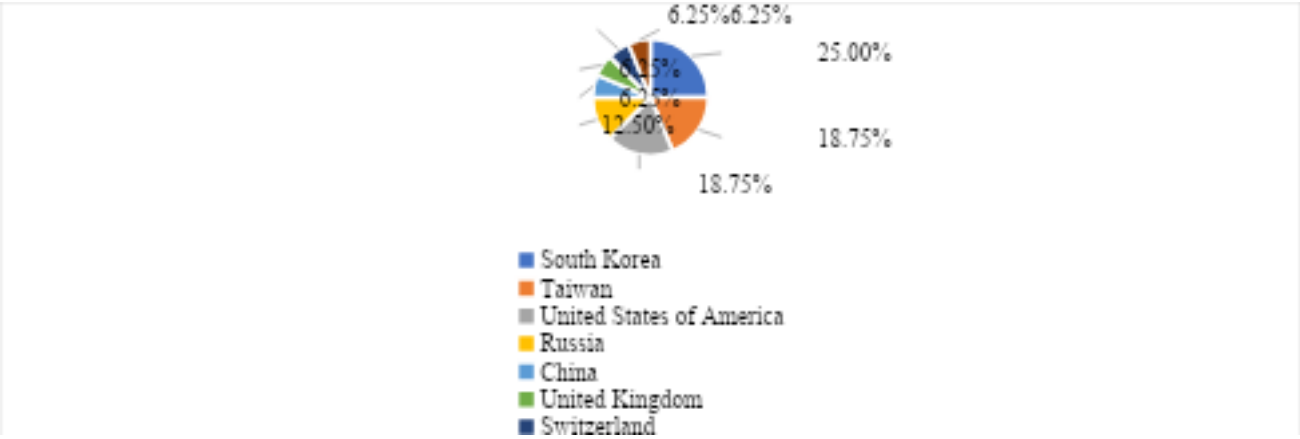
Decreasing inventories can be explained by two reasons and probably they both apply to some degrees. First, the import sanctions hinder those manufacturers' production, so they can not replenish their stocks. The second plausible explanation is that their productions were unable to keep up with the skyrocketing demand so their shelves were cleared.

On the customer side, the only company, which decreased its inventory was Chinese. From this box, it can be concluded that the aggregate demand increased, compared to the other, more "balanced boxes". From an economical point of view, this is in line with the inflation depicted on Figure 1 above. Namely, if production cannot satisfy the demand, prices and inflation take up. The Russian government is among the buyers as well. Considering restricted information accessibility, we can suspect that the state has actually increased its stocks significantly to be able to maintain the war efforts. Another dimension of the graph highlights the weight of the Russian state. The small number of (bigger) customers compared to the higher number of (smaller) suppliers.

Figure 5 focuses on the geographical exposures of UNAC from the supplier side and Figure 6 from the customers. Note that the relevant data is not available with respect of the last years and that Russia is not reported as a customer at all, which is quite unrealistic yet again. The pie charts depict the status of the turning points of 2022-2023.

Figure 5:

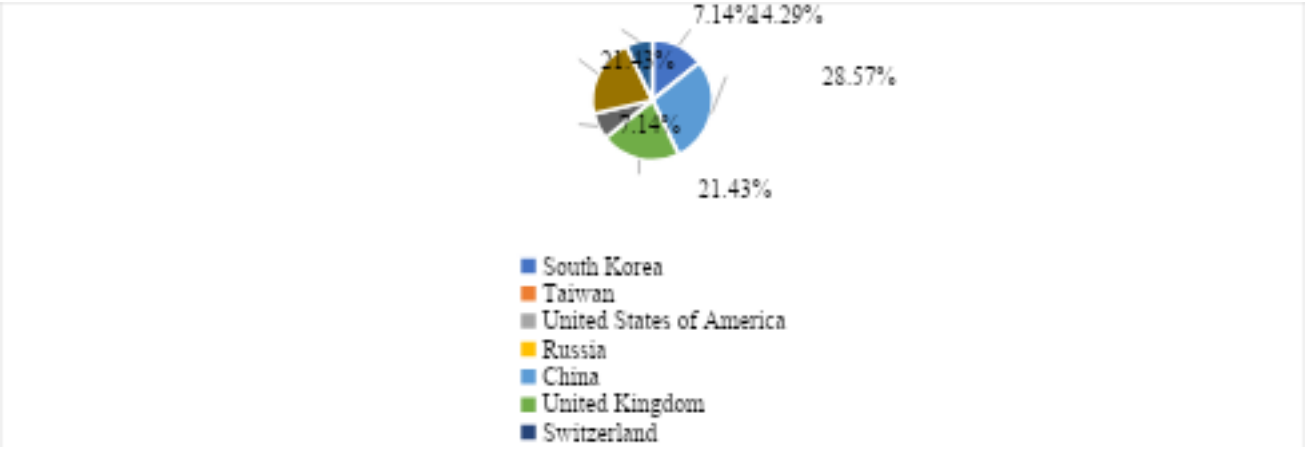
Geographic location of supplier facilities of United Aircraft Corporation, 2022/23



Source: Bloomberg, own editing.

Figure 6:

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



Source: Bloomberg, own editing.

Figure 5 suggests that the exposure of the Russian defense industry to western suppliers was not eliminated completely after three years of sanctioning, it adds up to 37,5% on the pie chart. The

most important suppliers are South-Korea and Taiwan. A Taiwanese company is mentioned on the supply chain map: Drewloong Precision, whose main products are aircraft engine parts.

Based on the second chart, half of the customers of UNAC are located in Europe, however the largest export destination is China; a major business partner might be Ligeance Aerospace. This Chinese company deals with aerospace manufacturing: structural parts, research, mining of non-ferrous materials, etc. Note, again, that there are no local (Russian) buyers captured hereby, which is hardly true.

The geo-exposure pie charts and the supply chain map seem to be contradictory. For instance, South-Korean firms are not identified on the supply-chain map above. It can be due to the domiciliation efforts forced by the Russian government: 80% of the supplier- and 67% of the customer bases were domiciled in the past at least 2 years according to Bloomberg and Vinokurova, (2024).

The Federal Law No. 290-FZ, passed in 2018, aims to encourage foreign firms to offshore their facilities to Russia. Although the law came in to effect long before the war, due to several bureaucratic hurdles, administrative barriers have been lingering the process. Subsequent amendments to this law (e.g., Federal Law No. 18-FZ of February 2022), grants favorable taxation conditions, ranging from 10% to total exemption on certain types of gains (Ponomareva, 2022) and a higher level of confidentially for the shareholders – in certain regions These benefits typically feature tax heavens.

In sum, the geographical as well as the corporate exposures of United Aircraft was significant prior the war, however the government incentivized the elimination of those “vulnerabilities”. Despite of the domiciliation motives of the Kremlin, we can suspect that the UNAC has business partners outside Russia. Compared to Yakovlev or Rostvertol, UNAC has the most dispersed customer base. From the supplier point of view, it is in parity with Rostvertol, which sources in almost 80% from Europe. Two administrative measures by the state were touched upon (Federal Law 290-FZ and 18-FZ), aiming the attraction of FDI into the country, although it is not

determined here if those were rather driven by expansive economic reasons (e.g. boost investment and employment) or to minimize supply chain exposures.

UNAC financial analysis

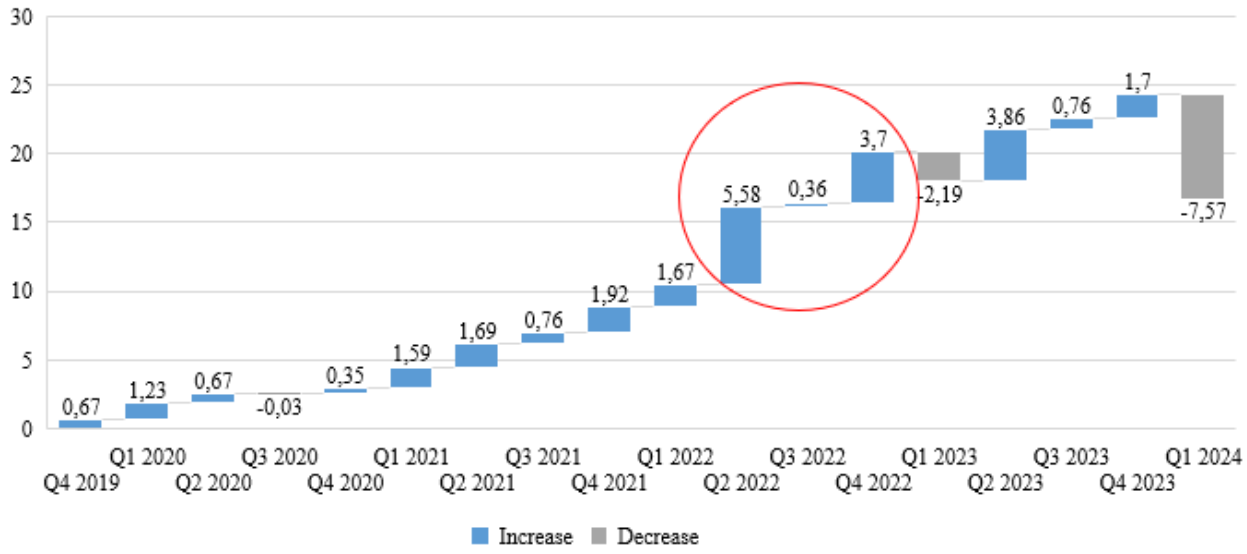
In this section six income and cash flow lines and two margins are assessed: (1) revenue, (2) gross profit, (3) net income, cash flows from (4) -operations, (5) -expenditures, (6) free cash flow, (7) gross profit-, and (8) net income margins. Gross profits are given by subtracting direct costs (e.g. material costs, salaries) from sales revenues, while net income is calculated by having all other expenses paid off (Liberto, 2025).

Financial information of Russian enterprises are sporadically accessible. Resolution No. 351 permits legal entities not to disclose financial statements if they are sanctioned and/or are involved in the military operation in Ukraine (Interfax, 2022a). Via Bloomberg Terminals, yearly data regarding 2017 and 2022 were not available between 2013 and 2023, neither semi-annual data of 2022 between 2019 and 2024.

For gaining a glimpse about the missing values from the second half of 2022, one may rely on the quarterly data of governmental expenditures since the Russian government is the primal buyer of UNAC. Figure 7 shows how public spending on administration, defense and social expenses evolved on a quarter-to-quarter basis between 2019 and 2024.

Figure 7:

Public administration, defense, social security expenditures, QoQ%



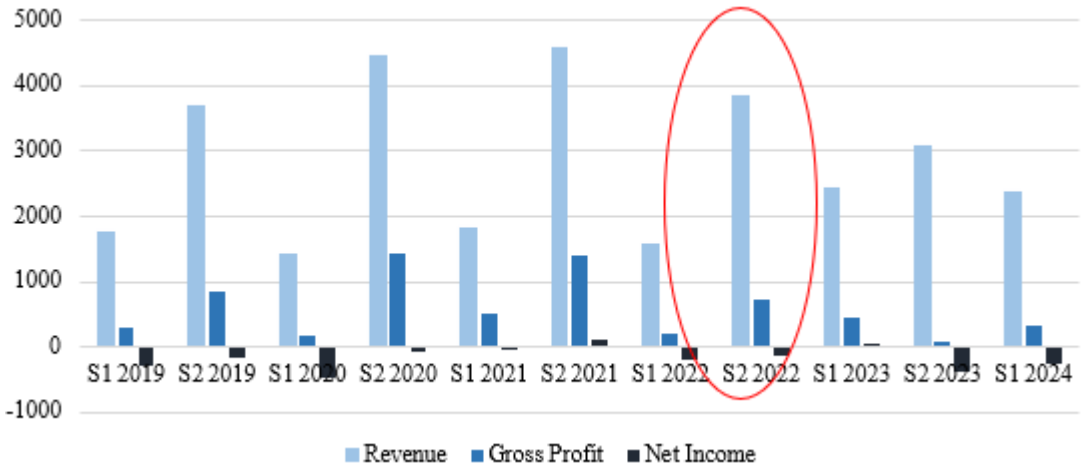
Source: Bloomberg, own editing.

An upsurge is detectable upon the launch of the war although because of the so-called basis effect in statistics, it does not seem to be sustained on the graph for more than one year after all. Large fluctuation appears since 2022. It is also clear that the highest volume of resources was spent on public functions in 2022. There was an immense money outflow into the society and administration which is in line with the increased inflation (Figure 1).

Figure 8 shows the three selected income items of UNAC. the missing datapoints from the second 6 month of 2022 were estimated manually with moving average, taking seasonality into the account.

Figure 8:

Income items, millions of USD

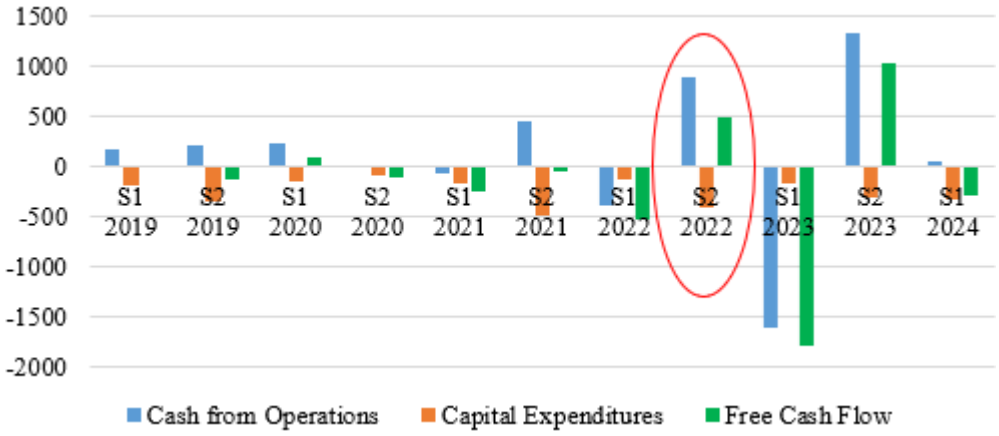


Source: Bloomberg, own editing.

The drop in profitability way very spectacular in the first half of 2022. Net incomes were negative except for two half years (S2 2021 and S1 2023). The same moving average calculation method was used for the on the cash flow statement too.

Figure 9:

Cash Flow items, millions of USD



Source: Bloomberg, own editing.

Negative operational cash flow of UNCA is in line with the declining profitability. Capital expenditures (capex) has been constantly negative, that suggest asset divestments. Capex are long-term assets, such as land, production machinery, buildings or R&D projects those are not necessary for daily operation (Fernando, 2024).

In the last decade, major Russian companies paid dividends and initiated long-term investments only when their operating cash flow and the availability of state funds allowed them to do so (Anankina, 2018). State funding opportunities grew after 2016-17, although prior 2019-2020, the government had non-military priorities, but infrastructural projects (pipelines, digitalization). However, such projects had two prerequisites: free cash flow and external funding (debt or subsidies). Typically, government-related enterprises tended to pay out generous dividends instead of profit retention (Anankina, 2018).

Table 2.

United Aircraft Corporation, income and cash flow summary

Data in millions of USD or percentages, estimated datapoint are in italics

UNAC, millions of USD	S1 2019	S2 2019	S1 2020	S2 2020	S1 2021	S2 2021	S1 2022	S2 2022	S1 2023	S2 2023	S1 2024
Revenue	1754,21	3681,97	1414,62	4460,05	1810,55	4564,15	1580,70	3825,01	2437,16	3085,88	2371,06
Gross Profit	280,10	840,17	185,94	1426,31	518,42	1387,39	214,05	727,09	441,12	66,79	337,06

Net Income	-277,23	-180,11	-478,40	-78,45	-8,74	114,89	-207,94	-132,42	52,72	-379,72	-247,95
Cash from Operations	177,19	210,86	231,83	-20,74	-74,70	441,60	-401,76	890,04	-1615,51	1338,47	53,54
Capital Expenditures	-185,80	-347,58	-144,17	-89,48	-179,55	-496,18	-129,60	-405,74	-177,59	-315,29	-335,91
Free Cash Flow	-8,62	-136,72	87,66	-110,22	-254,25	-54,58	-531,36	484,30	-1793,10	1023,18	-282,37
Gross profit Margin	15,97%	22,82%	13,14%	31,98%	28,63%	30,40%	13,54%	19,01%	18,10%	2,16%	14,22%
Net Income Margin	-15,80%	-4,89%	-33,82%	-1,76%	-0,48%	2,52%	-13,15%	-3,46%	2,16%	-12,31%	-10,46%

Source: Bloomberg, own calculations

Deriving from the dependency on state funding and potential indebtedness, UNAC is not able to settle its debt “on its own”, especially if the declining revenues are also taken into the account. Nevertheless, state funding may also deplete as governmental expenditures on defense plummet too (Figure 7). Negative free cash flow and divestitures (negative capex) underline these implications as well.

Conclusions

In this paper, a Russian military firm's supply chain as well as selected financial indicators were assessed. The two research questions are connected to the last point specifically: (1) how the non-domestic supply-chain exposure of UNAC evolved in the past approximately 5 years and (2) how the invasion in 2022 has impacted some key financial indicators of the firm. However, driven by data scarcity, the findings must be taken with reservations.

As for question 1: UNAC has not really eliminated its dependencies on foreign sources, although the state provided a variety of assistance and exercised measures to achieve that goal. Questions 2: UNAC is divesting its asset base, which means that it can not offset its cash flow problems anymore, neither with the substantial state support behind it. Yet a key for the persistence of the company can be the profound state involvement in it – see the recent acquisition of other government-related military companies (e.g. Sukhoi).

The dependency on western technology import is still present to various degrees in the entire Russian economy. The government has taken measures to mitigate these exposures with moderate success, for examples: domiciliation of foreign facilities, attraction of FDI remained coupled with growing expenditure from the GDP on defense and public functions.

References

- Anankina, E. (2018). How Russia's Investment Plans Might Affect Economic Growth and Corporate Credit Quality. S&P Global. Retrieved from: https://www.spglobal.com/ratings/en/research/articles/181112-how-russia-s-investment-plans-might-affect-economic-growth-and-corporate-credit-quality-10761036.

- Attinasi, M., G., Doleschel, J., Gerinovics, R., Gunnella, V. & Mancini, M. (2022). Trade flows with Russia since the start of its invasion of Ukraine. European Central Bank. Retrieved from: https://www.ecb.europa.eu/press/economic-bulletin/focus/2022/html/ecb.ebbox202205_01~9a64e27f6f.en.html.

- Buklemishev, O., V. (2024). Russian economic development under forceful defense spending growth. Russian Journal of Economics, 10(4), 319-331. DOI: 10.32609/j.ruje.10.141382.

- Clifford Chance (2022). Ukraine: the latest global sanctions and export controls. Clifford Chance. Retrieved from: www.cliffordchance.com/content/dam/cliffordchance/briefings/2022/04/ukraine--the-latest-global-sanctions-and-export-controls---5pm-gmt-13-april-2022.pdf..

- European Council (2023). Impact of sanctions on the Russian economy. European Council. Retrieved from: https://www.consilium.europa.eu/en/infographics/impact-sanctions-russian-economy/.

- Fernando, J. (2024). Capital Expenditure (CapEx) Definition, Formula, and Examples. Investopedia. Retrieved from: https://www.investopedia.com/terms/c/capitalexpenditure.asp.

- Gaidar Institute (2019). Problems of import dependency and import substitution for the Russian industry. Gaidar Institute. Retrieved from: www.iep.ru/files/news/Tsukhlo_24.09.19.pdf.

- Interfax.com (2022a). Russian govt extends right of companies not to disclose sensitive info until July 1, 2023. Interfax. Retrieved from: https://interfax.com/newsroom/top-stories/85436/.

- Interfax.ru (2022b). Акционеры ОАК одобрили присоединение к корпорации "Сухого" и РСК "МиГ". Interfax. Retrieved from: https://www.interfax.ru/business/816526.

- Liberto, D. (2025). Gross Profit vs. Net Income: What's the Difference? Investopedia. Retrieved from: https://www.investopedia.com/ask/answers/101314/what-are-differences-between-gross-profit-and-net-income.asp.

- Office of Foreign Assets Control (2025). Sanctions List Search. OFAC.org. Retrieved from: https://sanctionssearch.ofac.treas.gov/Details.aspx?id=35332.

- Ponomareva, J. (2022). Increasing the tax appeal of special administrative regions. DLA Piper. Retrieved from: https://www.dlapiper.com/en/insights/publications/2022/04/increasing-the-tax-appeal-of-special-administrative-regions.

- Pravda.com (2024). SAP software developer stops access to services for Russian customers. Ukrainska Pravda 25. Retrieved from: https://www.pravda.com.ua/eng/news/2024/02/7/7440848/.

- Rhodus Intelligence (2025). How does Russia make Missiles? Rhodus Intelligence Special Report. Retrieved from: https://www.rhodus.com/.

- Russian Government Resolution No. 102 of February 5. (2015). On the Establishment of a Ban and Restrictions on the Admission of Certain Types of Industrial Goods Originating from Foreign Countries for the Purposes of Procurement for State and Municipal Needs.

- Russian Government Resolution No. 166 of March 11. (2022). On Measures to Ensure the Technological Independence and Security of the Critical Information Infrastructure of the Russian Federation.

- Seremet, S. (2023). Importhelyettesítés Oroszországban: tapasztalatok és kilátások. Eurasia Center. Retrieved from: https://eurasiacenter.hu/wp-content/uploads/2023/01/EK_2023_5.pdf.

- Simola, H. (2024). Russia's GDP growth reflects military spending, not economic strength. Finlands Bank. Retrieved from: https://www.bofbulletin.fi/en/blogs/2024/russia-s-gdp-growth-reflects-military-spending-not-economic-strength/.

- Suhaimi, Z., S. & Mokhtar, A., R., M. (2023). Exploring the elements of supply chain resilience in Malaysia's Defense Industry -A Conceptual Framework. Asean Journal f Management and Business Studies, 5(2), 77-82. DOI: 10.26666/rmp.ajmbs.2023.2.12.

- Tadviser.com (2025). Systems (formerly Siemens Russia). Tadviser. Retrieved from: https://tadviser.com/index.php/Company:Systems_(formerly_Siemens_Russia).

- Trading Economics (2025). Russian Inflation rate. Trading Economics. Retrieved from: https://tradingeconomics.com/russia/inflation-cpi.

- Trading Economics (2025). Russian interest rate. Trading Economics. Retrieved from: https://tradingeconomics.com/russia/interest-rate.

- Trefilov, V. (2022). Не «Сделано в России». Михаил Хазин рассуждает о хромающем импортозамещении. Aif online. Retrieved from: https://aif.ru/money/economy/ne_sdelano_v_rossii_mihail_hazin_rassuzhdaet_o_hromayushchem_importozameshchenii.

- Vinokurova, M. (2024). Redomiciliation of a foreign company to Russia: points to consider. Denuo Legal. Retrieved from: https://denuo.legal/en/insights/news/C28/.