Impact of Russian airspace closures on Scandinavian aviation

Operational and economic consequences

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Foreword

The report explores the operational and economic impacts of geopolitical shifts on aviation, particularly in relation to the closed airspaces over Russia and its neighboring regions. In 2024, air traffic between Scandinavia and several Eastern European and Asian countries was significantly reduced, leading to substantial effects on both passenger flow and operational costs for SAS.

The aim of this report is to analyze the consequences of the closed airspaces on passenger capacity, costs, and flight routes, and to examine how they have affected competition in the market. It also highlights the skewed dynamic between Scandinavian airlines (represented by SAS) and Chinese airlines, with the latter being able to operate on routes that remain inaccessible for their European counterparts due to airspace restrictions.

The report is based on data related to passenger flows, capacity changes, and economic calculations, providing an in-depth analysis of the situation.

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Main insights

- Several no-fly zones have been established due to ongoing geopolitical crises, significantly affecting aviation.
- In 2024, Scandinavia lost 700,000 departing seats to Belarus, Russia, and Ukraine, compared to 2019.
- An additional 500,000 departing seats, or 57%, to affected areas in Asia and the Middle East have been lost. In contrast, other unaffected long-haul routes have only 19% fewer seats in 2024 compared to 2019.
- After the closing of the Russian airspace, the average airborne time for SAS´ Copenhagen-Shanghai route increased by nearly two hours or 19%.
- This led to increased costs in several areas, including higher fuel consumption, reduced aircraft and crew utilization, higher aircraft usage expenses, and a decreased cargo payload.
- The extended airborne time has reduced both the quality of the service and increased costs compared to airlines that can still overfly Russia.
- This has resulted in SAS not operating direct flights to China in 2025.
- Meanwhile, Chinese airlines are operating more seats from Scandinavia to China than before COVID-19.
- This has directly impacted passenger flow, with Western airlines affected by the Russian no-fly zones experiencing significantly fewer passengers in 2024 compared to 2019, unlike airlines that can still use Russian airspace.

Introduction

Geopolitics can be defined as political activity influenced by the physical features of a country or area of the world[1]. International aviation is, by nature, a border crossing activity, and geopolitics can thereby influence its operation.

Already in the first convention for civil aviation – the so-called Chicago Convention – it was defined that every state has complete and exclusive sovereignty over airspace above its territory[2]. However, countries can grant 'freedoms of the air' to other nations. For example, the first freedom right is defined as the right or privilege, in respect of scheduled international air services, granted by one State to another State or States to fly across its territory without landing[2]. Thus, states have the authority to permit or prohibit foreign commercial flights over their territory. In the event of conflicts between nations, closing airspace can serve as a form of retaliation. Such restrictions are normally driven by political motives.

Additionally, security concerns can limit the regions in which civil aviation is allowed to operate. For instance, war zones are always designated as no-fly zones for civil aircraft.

For other reasons countries can choose to close the airspace to civil aviation over specific locations.

Examples are:

- Tourism sites like Taj Mahal in India, Parthenon in Athens, or Disney World in Florida
- Inner cities – for example Budapest and Paris
- Important public building areas like Constitution Avenue in North-east Islamabad and Parliament Building in New Delhi
- Nuclear Plants
- Military zones

The aim of this report is to examine the potential operational and economic impacts of these politically and security-driven airspace restrictions.

1 https://dictionary.cambridge.org/dictionary/english/geopolitics
2 Convention on International Civil Aviation – Doc 7300

Current no-flight zones for Scandinavian Airlines

Currently, there are several areas that are no-flight zones for Scandinavian based aircraft:

Ukraine–Russian military conflict

On February 24, 2022, Ukraine closed its entire airspace to all civil traffic due to a military invasion by Russia. The conflict between Russian and Ukrainian forces remains active. In response, Russia, Belarus, and Moldova have also closed large sections of their airspace near the boundaries of their Flight Information Region (FIR) with Ukraine.

In February 2022, Russia banned airlines from several Western countries, including all EU nations and the USA, from entering its airspace in response to similar restrictions imposed on Russian aircraft by these countries. However, Chinese airlines and others are still permitted to use Russian airspace.

Belarusian sanctions

In 2021, a Ryanair subsidiary, Buzz, flight from Athens to Vilnius was forced to land in Minsk by the Belarusian government. This incident prompted the EU to ban Belarusian airlines from overflying EU airspace and accessing EU airports. Additionally, the EU urged all EU-based carriers to avoid flying over Belarus[3].

Syrian armed conflict

Syria has been an active conflict zone since 2011. Syrian airspace, especially around Damascus, should according to European authorities be avoided.

Armed conflict between Lebanon and Israel

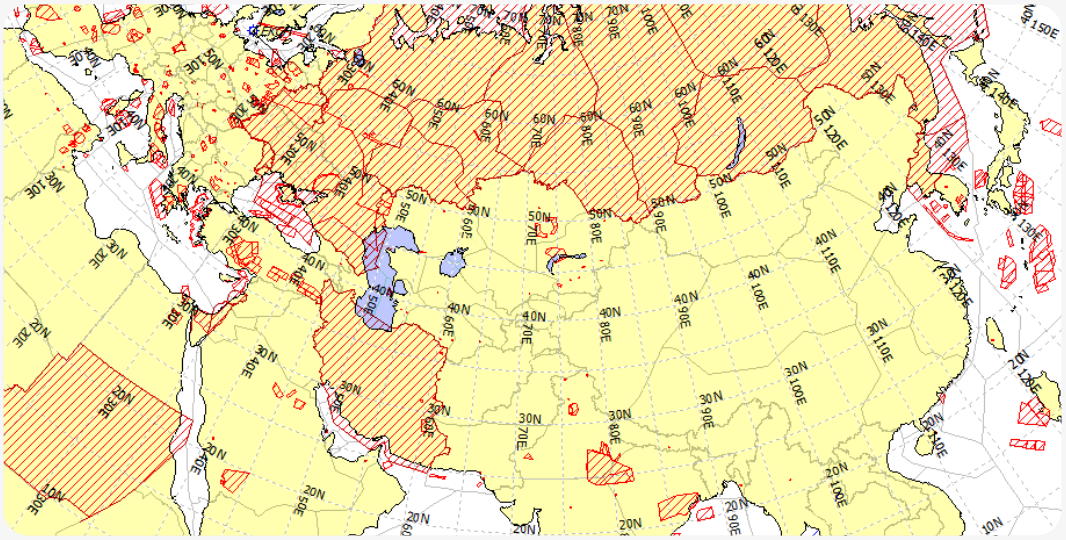
The entire area from Lebanon in the north to the northern part of the Sinai Peninsula is a no-flight zone for civil aircraft.

Iran

Iran is involved in a conflict with Israel, and missile attacks could occur in both directions. This has made Iran a no-flight zone for international airlines.

In the figure below, the no-flight zones for SAS in November 2024 are shown with red stripes.

Figure 1. SAS no-flight zones November 2024



This map indicates that, from Scandinavia, it is primarily the traffic to and from Asia that is affected by the no-fly zones.

Source: SAS

3. European Council conclusions on Belarus, 24 May 2021 – Consilium

Which destinations from Scandinavia are impacted?

Due to the mentioned crises several direct routes from Scandinavia have been suspended:

- Belarus: Minsk (suspended 2021)
- Ukraine: Kyiv and Lviv (suspended 2022)
- Russia: Moscow and Saint Petersburg (suspended 2022)
- Iran: Tehran (suspended 2021)
- Israel: Tel Aviv (suspended 2023)

Additionally, flight paths from Scandinavia to the following countries have been rerouted due to the closed airspace:

- China/Hong Kong
- Japan
- Jordan

The table below shows the seat capacity from Scandinavia to the affected areas in 2019 and 2024.

Table 1. Departing seats from Scandinavia to areas affected

	2019	2024	Change
Belarus	11,285	0	-100%
Russia	471,492	0	-100%
Ukraine	245,579	0	-100%
Three countries in total	**728,356**	**0**	**-100%**
Long-haul in total	**4,700,199**	**3,540,691**	**-25%**
Iran	37,366	0	-100%
Israel	78,662	0	-100%
Japan	83,995	54,900	-35%
Jordan	33,121	14,724	-56%
China/Hong Kong	440,122	216,552	-51%
Five countries in total	**673,266**	**286,176**	**-57%**
Other long haul	4,026,933	3,254,515	-19%

Source: SRS Analyser

More than 700,000 departing seats have been lost from Scandinavia to Belarus, Russia, and Ukraine alone.

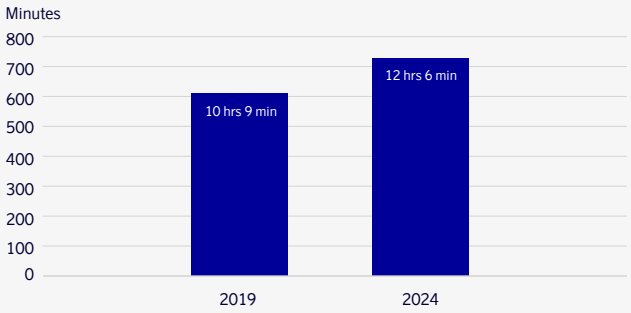
The overall long-haul capacity from Scandinavia in 2024 was still 25% below pre-COVID levels. However, the five geopolitically affected long-haul countries were 57% (equivalent to 390,000 departing seats) below, while the other non-affected long-haul destinations were only 19% below. This shows that destinations from the affected areas have lost substantially more capacity than the rest of the market.

In total, Scandinavia has lost 1.1 million seats on departures to the geopolitically affected areas from 2019 to 2024.

Scandinavia-China air traffic changes

Chinese airlines can still use Russian airspace, while Western airlines, like SAS, cannot. Consequently, the route lengths for Scandinavian and Chinese airlines will differ significantly.

Figure 2. Average airborne minutes from Copenhagen Airport to Shanghai with SAS

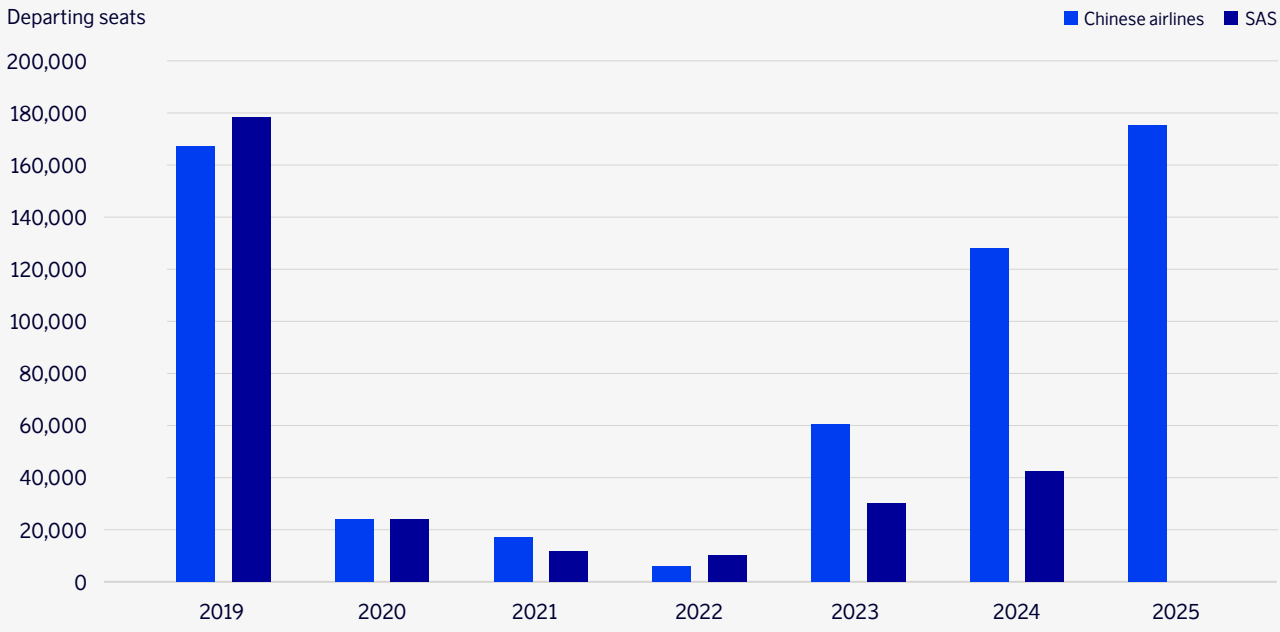


Source: SAS

The airborne time for SAS flights from Copenhagen to Shanghai has increased by 19% from 2019 to 2024. This results in several additional costs, which are described later in this report. Moreover, the longer travel time makes the service less attractive to passengers.

Chinese airlines still have the same airborne time as in 2019. This situation has impacted seat capacity between Scandinavia and China, as shown in the figure below.

Figure 3. Seats from Scandinavia to China/Hong Kong (for Q1–Q3)



Source: SRS Analyser

SAS closed its route to Shanghai in November 2024, marking the airline´s last route to China/Hong Kong. As a result, SAS will not operate any routes to China in 2025. Meanwhile, Air China and Hainan Airlines have planned an increase in capacity for 2025 compared to 2019.

Thus, in 2025, the only way to fly directly between Scandinavia and China is by using Chinese airlines that fly through Russian airspace.

Effects on the passenger flows

The table below displays the number of passengers traveling from Scandinavia to China/Hong Kong in 2019 and 2024, categorized by flying directly or using a connecting airport (outside Scandinavia).

Table 2. Number of passengers from Scandinavia to China/Hong Kong

Type	Airline	2019	2024	Diff.
Total		**844,176**	**508,904**	**-40%**
Direct	SAS	207,112	43,041	-79%
	Chinese airlines	274,735	204,716	-25%
Connecting	Western Airlines	225,675	142,101	-37%
	Other	**136,654**	**119,046**	**-13%**

Note: Covering January to November. Source: IATA DDS

In 2024, the total number of passengers traveling between Scandinavia and China was still 40% below the 2019 level. However, the number of passengers flying with SAS, which cannot use Russian airspace, decreased by 79%, while Chinese airlines were only 25% below their 2019 numbers.

The same situation applies to passengers travelling between Scandinavia and China using a hub airport outside Scandinavia on their way to China. Western airlines, which cannot use Russian airspace, have seen a 37% decrease in passengers, while other airlines have only decreased 13%.

The table below shows the top-15 hub airports (outside Scandinavia) used by passengers between Scandinavia and China.

Table 3. Top-15 (in 2019) hub airports used by connecting passengers from Scandinavia to China/Hong Kong

Hub airport	2019	2024	Diff.
Helsinki	134,163	31,484	-77%
Amsterdam	56,824	34,836	-39%
Frankfurt	27,710	42,139	52%
Doha	18,718	25,391	36%
Moscow	18,658		-100%
Paris	13,638	13,080	-4%
Munich	11,637	26,696	129%
Dubai	11,491	16,509	44%
London Heathrow	10,368	3,971	-62%
Zürich	8,896	8,948	1%
Istanbul	5,895	10,692	81%
Bangkok	5,577	5,507	-1%
Warsaw	2,251	2,213	-2%
Vienna	1,459	6,330	334%
Singapore	1,364	224	-84%

Note: Covering January to November. Source: IATA DDS

In 2019, Helsinki was the most used hub for passengers traveling between Scandinavia and China. However, by 2024, the number of passengers had decreased significantly by 77% because Finnair can no longer use Russian airspace.

At Frankfurt, Lufthansa has managed to increase passenger numbers despite the extended route length around Russia. However, with the closure of the Frankfurt-Beijing route in November 2024, the number of passengers using this hub is expected to decrease significantly in 2025. Instead, Lufthansa will increase capacity at the more southerly Munich airport, which has a shorter detour around Russia compared to Frankfurt.

The hubs in Dubai, Doha, and Istanbul, which are not affected by the closure of Russian airspace, have all seen an increase in passengers traveling from Scandinavia to China.

Effect on airline costs

The additional two hours of airborne time between Scandinavia and China reduce the quality of the service offered to passengers. At the same time, the extra costs incurred on the route lead to a loss of competitiveness.

The longer airborne time increases several costs for an airline.

Fuel

The 19% increase in airborne time also requires approximately 19% more fuel. Since fuel accounts for around 25% of the total costs, this alone will raise the overall cost by about 5%.

Utilization of aircraft and crew

An airline´s competitiveness is heavily dependent on its ability to efficiently utilize its fleet and crew. The nearly two-hour increase in flying time between Copenhagen and Shanghai will decrease aircraft utilization, resulting in at least a four-hour delay in returning to the base in Copenhagen. This situation similarly impacts the crew.

Aircraft usage costs

Flying longer distances will lead to higher maintenance costs per operation. The aircraft's depreciation will also increase.

Payload (cargo)

A substantial portion of the revenue on long-haul flights is derived from cargo, sometimes making up as much as 20% of the total revenue. However, the extended airborne time limits the amount of cargo that can be loaded. SAS lost approximately 20–25% of the cargo capacity on the CPH-Shanghai route due to the longer flying distance. As a result, total revenue decreased by 4–5%.

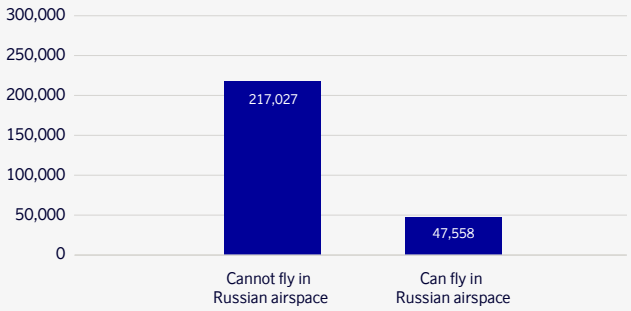
Overall, the cost of operating a route between Scandinavia and China increases significantly if Russian airspace cannot be used. Combined with the declining quality of the service compared to competitors, it is no longer profitable to operate these routes.

SAS will launch a new route to Seoul starting in September 2025. Although this route is impacted by the closed Russian airspace, unlike the routes to China, South Korean competitors face the same conditions. Therefore, it is expected that the route will be profitable.

Changes in capacity between Europe and China

Additionally, the rest of Europe´s capacity to China has been affected. Table A in the appendix lists the routes that will not be operated in 2025 compared to 2023. Out of these 19 routes, only seven are unable to use Russian airspace. This suggests that restricted airlines may not be more severely affected than others. However, these seven routes account for 82% of the seat capacity, as illustrated in the figure below.

Figure 4. Closed routes: seat capacity in 2023 on Europe-China routes that will not be operated in 2025 compared to 2023

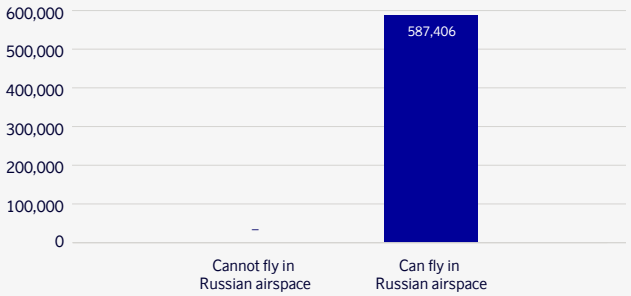


Source: SRS Analyser

Thus, routes that cannot utilize Russian airspace account for many of the passengers.

Table B in the appendix highlights the new routes for 2025 compared to 2023. All these routes can use Russian airspace, and the majority are operated by Chinese airlines.

Figure 5. New routes: seat capacity in 2025 on Europe-China routes that are new in 2025 compared to 2023



Source: SRS Analyser

This indicates that the only new routes between Europe and China planned for 2025 are those that can operate in Russian airspace.

Appendix

Table A. Closed routes between Europe and China in 2025 vs. 2023

Origin	Destination	Airline Name	Departing seats 2023	Cannot fly in Russian airspace
Brussels	Xi'an	Hainan Airlines	869	
Copenhagen	Shanghai	SAS	41,700	X
Helsinki	Chengdu	Sichuan Airlines	3,534	
Berlin	Dalian	Hainan Airlines	2,317	
Frankfurt	Beijing	Lufthansa	77,645	X
Frankfurt	Changchun	China Southern Airlines	626	
Frankfurt	Hangzhou	China Eastern Airlines	3,432	
Frankfurt	Hefei	Condor	1,298	X
Frankfurt	Nanjing	Lufthansa	1,953	X
Milan-Malpensa	Tianjin	Neos	1,077	X
Amsterdam	Shenzhen	China Southern Airlines	3,131	
London-Heathrow	Beijing	British Airways	30,464	X
London-Heathrow	Shanghai	Air China	12,792	
London-Heathrow	Shanghai	Virgin Atlantic	62,890	X
Manchester	Dalian	Hainan Airlines	560	

Source: SRS Analyser

Table B. Opened routes between Europe and China 2025 versus 2023

Origin	Destination	Airline Name	Departing seats Q1–Q3 2025	Cannot fly in Russian airspace
Vienna	Chengdu	Hainan Airlines	32,447	
Vienna	Shenzhen	Hainan Airlines	21,901	
Brussels	Hong Kong	Cathay Pacific	9,520	
Brussels	Shanghai	Juneyao Air	46,531	
Brussels	Shanghai	Hainan Airlines	44,844	
Prague	Beijing	Hainan Airlines	33,988	
Paris-De Gaulle	Xi'an	Hainan Airlines	11,256	
Marseille	Shanghai	Shanghai Airlines	32,545	
Frankfurt	Shenyang	China Southern Airlines	12,207	
Munich	Hong Kong	Cathay Pacific	17,360	
Munich	Shanghai	Air China	35,880	
Budapest	Guangzhou	China Southern Airlines	42,900	
Budapest	Shenzhen	Hainan Airlines	21,357	
Budapest	Xi'an	Shanghai Airlines	11,037	
Venice	Shanghai	China Eastern Airlines	31,518	
Oslo	Beijing	Hainan Airlines	25,066	
Belgrade	Guangzhou	China Southern Airlines	23,088	
Barcelona	Hong Kong	Cathay Pacific	25,760	
Barcelona	Shanghai	Air China	36,192	
London-Gatwick	Guangzhou	China Southern Airlines	13,405	
Manchester	Shanghai	Juneyao Air	58,604	

Source: SRS Analyser