



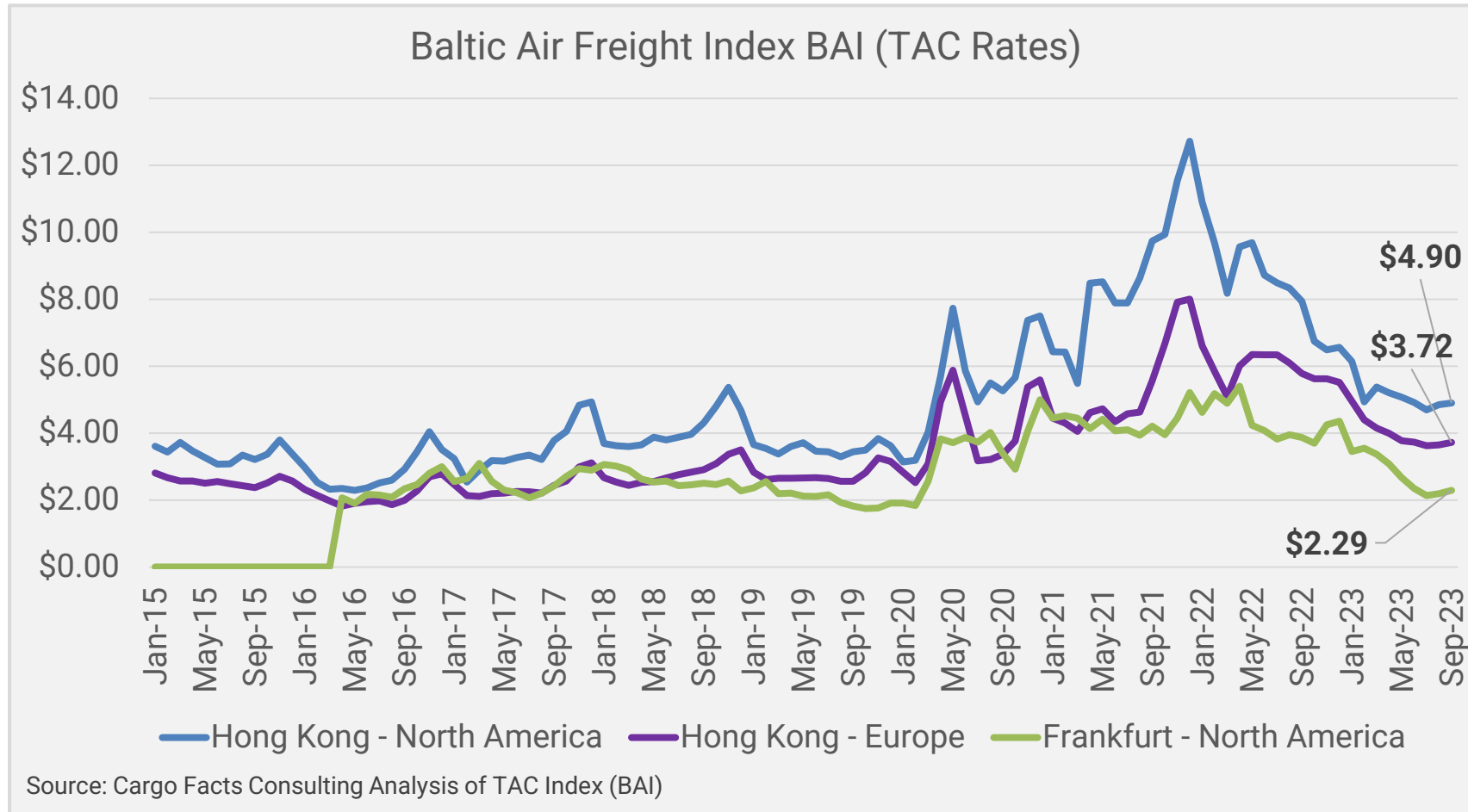
Cargo Facts Consulting Briefings Demo: Unlock the Future of Air Cargo

Agenda

- Latest Trends and Developments
- Supply & Demand Dynamics
- Freightier Forecast
- E-commerce and Express Indicators
- Summary & Outlook
- Interactive Q&A

Trends & Developments

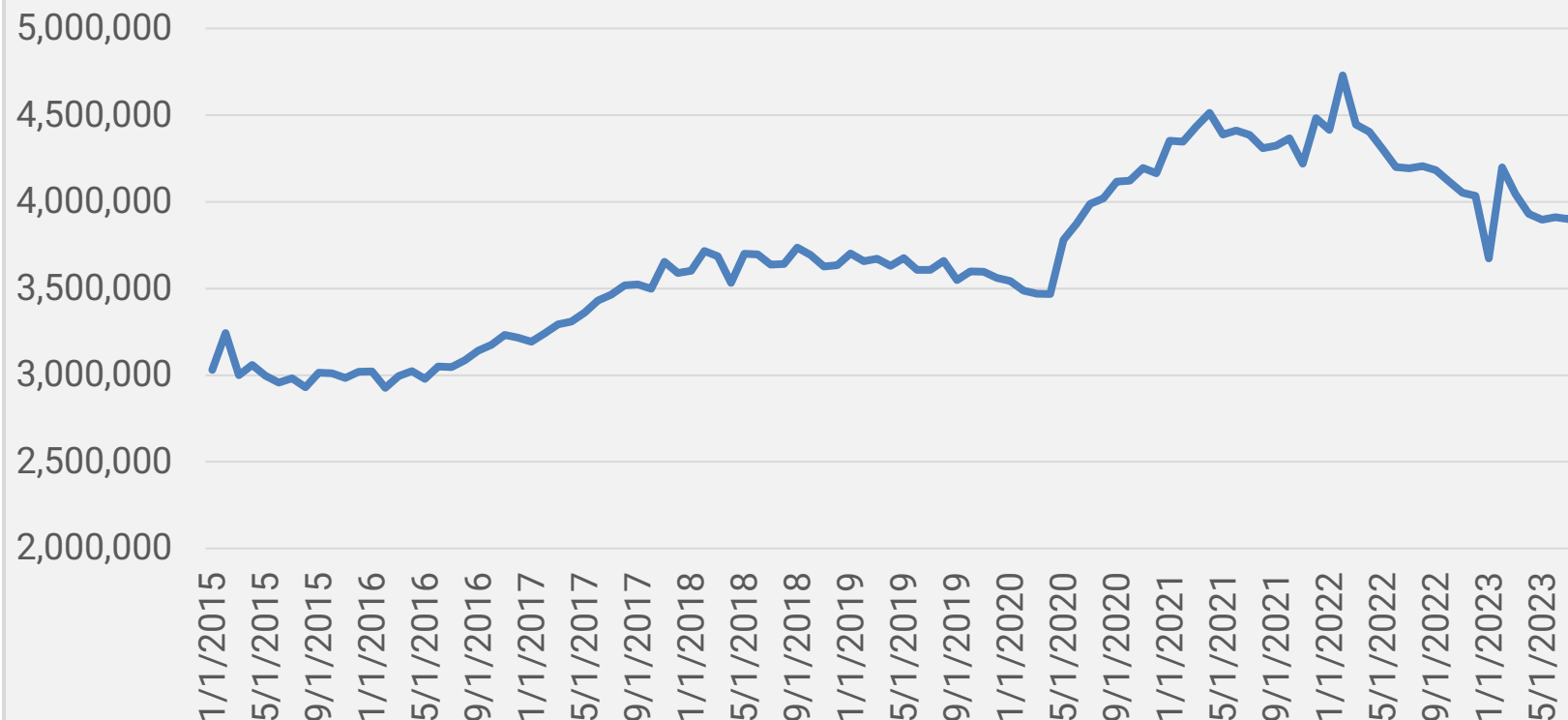
Air freight rates keep rising in September and early October, showing optimistic signs for remaining of the year.



- Have air freight rates reached their lowest point?
- Rates in the market signal a time for optimism.
- As we approach the potential turning point, key players adaptability and resilience will be key to seizing opportunities and navigating the path to recovery.

Industry RTMs in 2023: despite overall downtrend, numbers in Q3 point to a slight uptick, showing levels of normalization.

Seasonally Adjusted US Air Revenue Ton Miles (Freight & Mail)

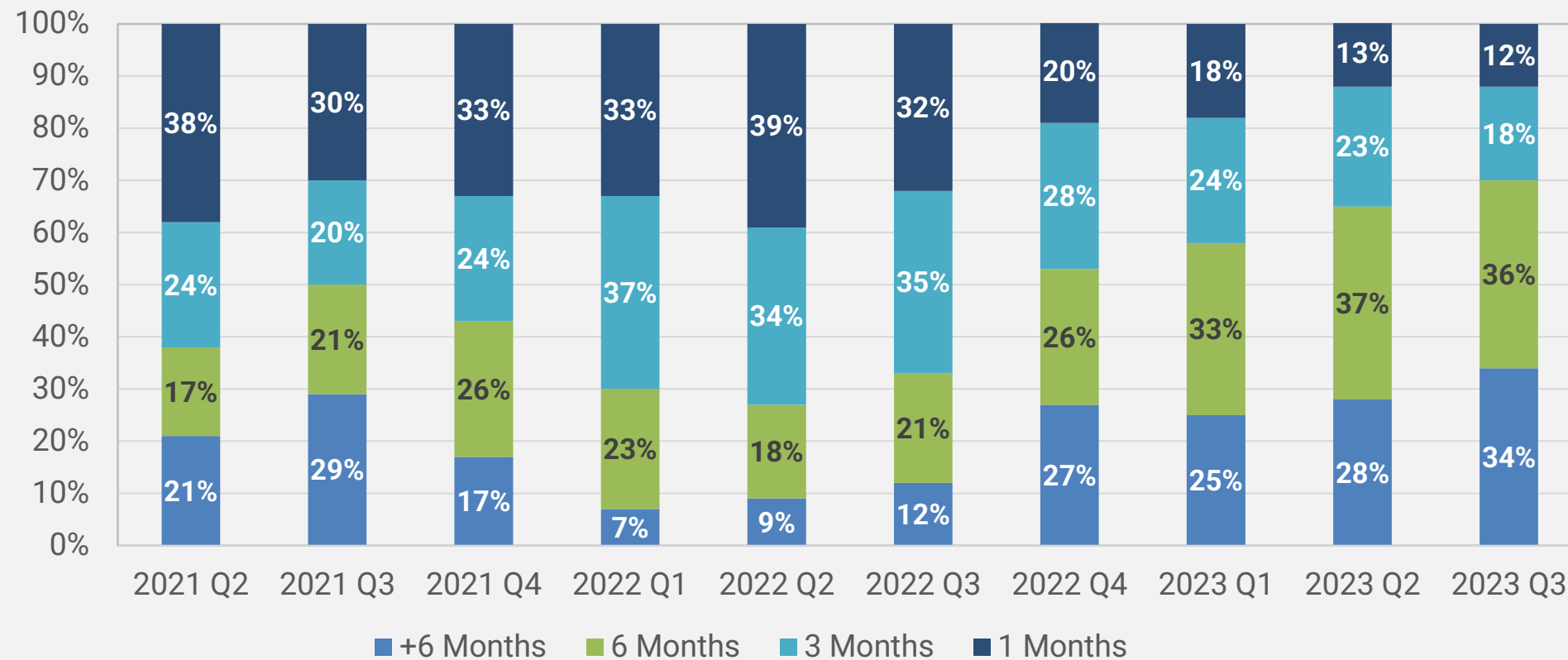


Source: Cargo Facts Consulting Analysis of US DOT, BTS

- Includes data from all US carriers domestic & international flights, all services.
- 2023YTD Data is still around 9% above pre-COVID-19 levels
- RTMs in 2023YTD show a volatile market and factors beyond seasonal adjustments are at play.
- Stakeholders in the industry should expect some level of stabilization through the end of the year.

Freight Forwarders keep seeking longer term contracts to secure volumes.

Share of Air Freight Contract Terms for Shippers



Longer term contracts between shippers and freight forwarders may signal 'more common ground' in a stabilizing global air cargo market.

Source: Cargo Facts Consulting, CLIVE Data Services

Jet Fuel Cost is down 16% from October 2022 but has been increasing since the beginning of the third quarter.

U.S. Gulf Coast Kerosene-Type Jet Fuel Spot Price FOB (USD/Gallon)



Source: Cargo Facts Consulting, US Department of Energy

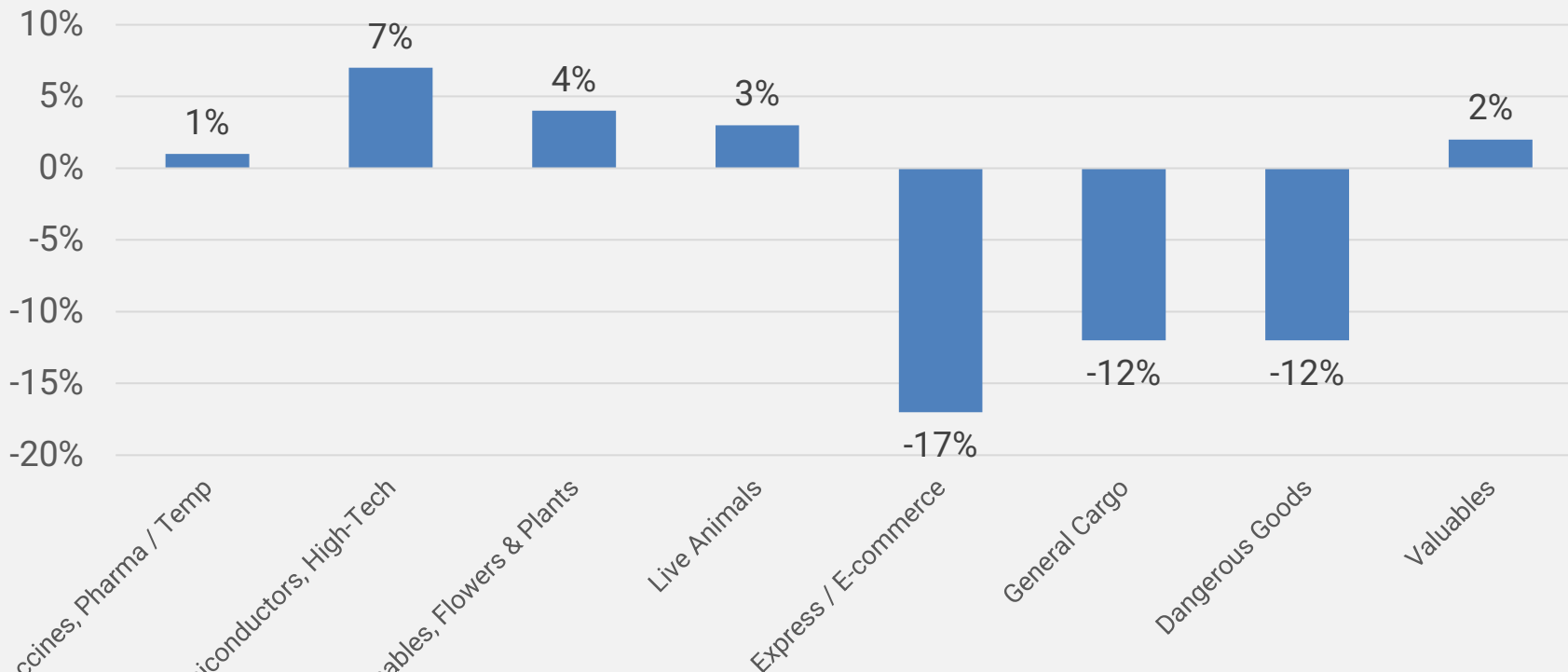
US Airline Fuel Cost is at a current level of \$3.12/gallon, up from \$2.98/gallon last month and down from \$3.72/gallon one year ago.

This is a change of – 16% from a year ago.

The industry saw lost fuel costs in Q2-Q3 counterbalancing the effects of low yields.

Special cargo displays a bright spot in overall market declines

Commodity Demand Growth – Chargeable Weight 2023YTD

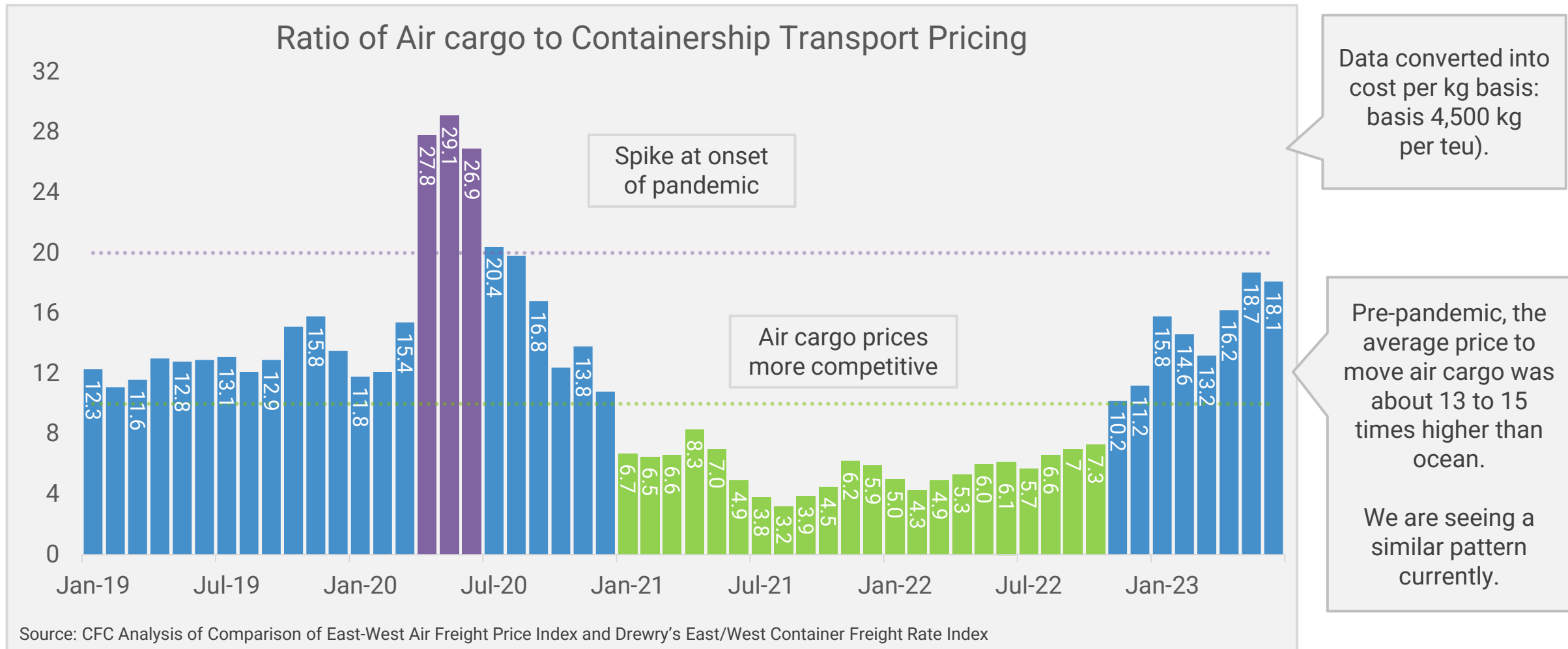


Source: CFC Analysis of WorldACD Data

■ Commodities shipped by Air

- The transport of special air cargo products has been the bright spot in a depressed air cargo market over the first eight months of 2023.
- However, improvements in special cargo were not enough to stop an overall decline as the market dropped by 7% over the first eight months.
- This drop narrowed down to 3% in the third quarter.

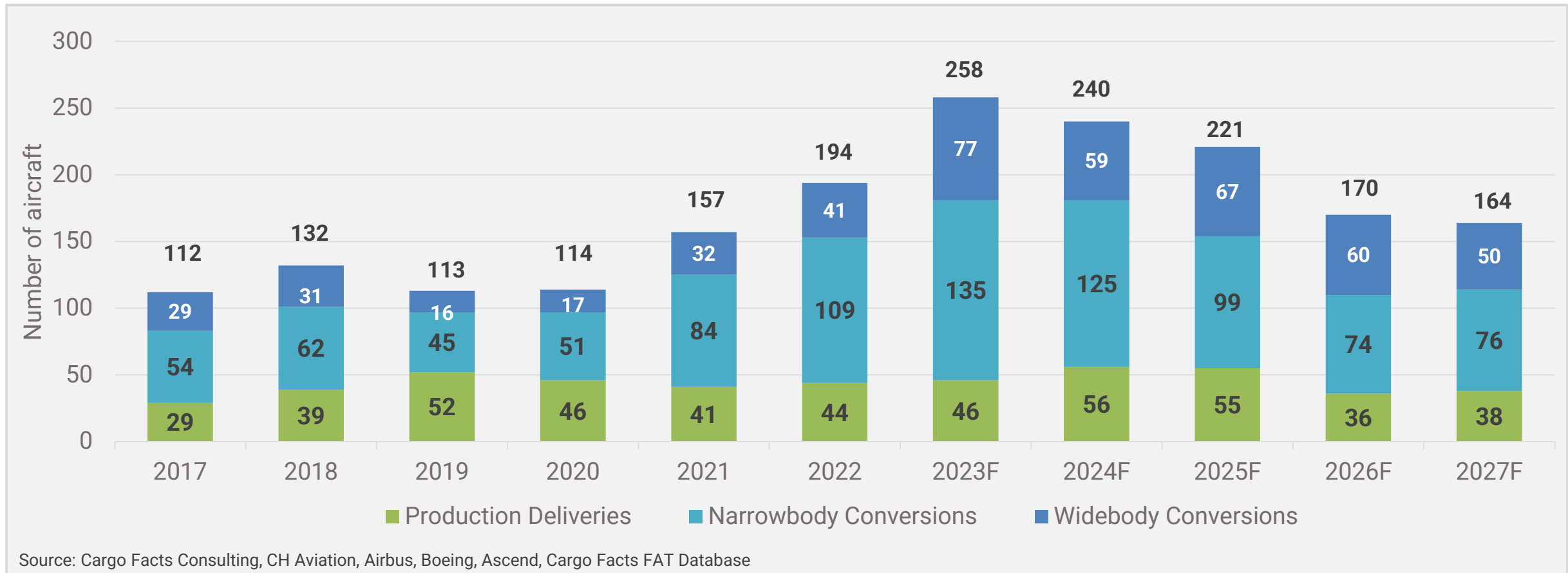
Air transport is not as cost-competitive as it used to be in 2021-2022.



Supply & Demand Dynamics

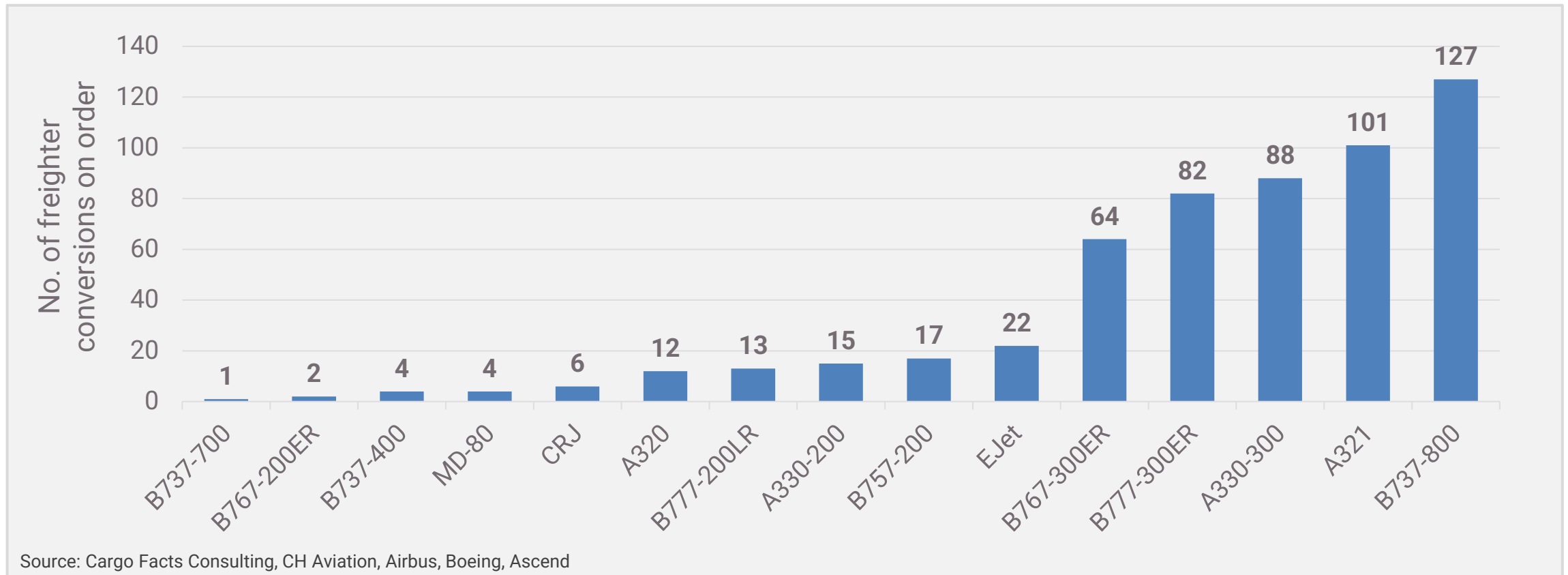
Freighter aircraft supply keeps growing in 2023 even though demand is down.

Historical Production Deliveries and Conversion Redeliveries Development Summary and Forecast: 2017-2027F

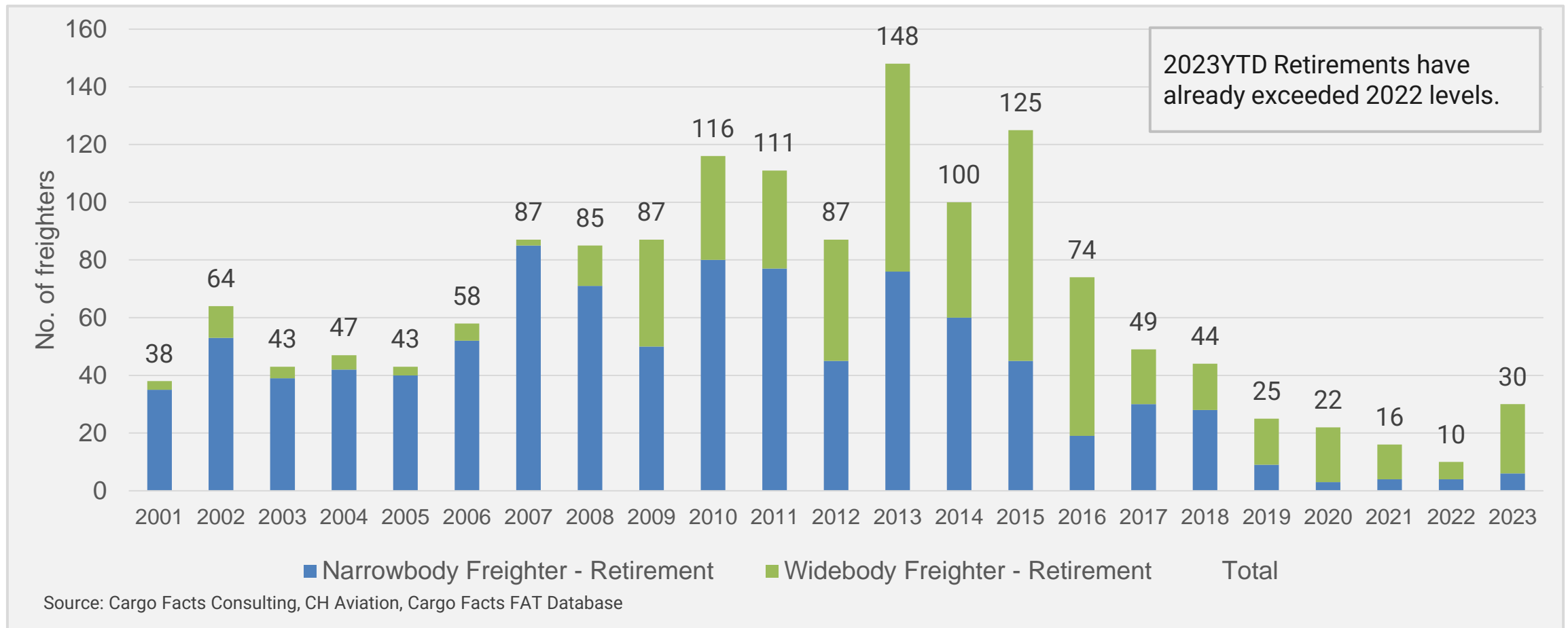


Currently, there are 538 aircraft on the backlog to be converted. The A321 and 737-800 are the two most popular types, followed by the A330-300 and 777-300ER.

Conversion Backlog Summary by Aircraft Type (as of October 2, 2023)



2022 saw the lowest freighter retirements but this is set to increase in 2023 and beyond, with excess capacity in the market and widebody aircraft aging.



Both the A350F and 777-8F programs kicked off strongly in 2022, but they have only registered four new orders in 2023YTD.

A350 Freighter	Orders	777-8 Freighter	Orders (LoI)
Air France Group	8	ANA	2
Air Lease Corp	7	Cargolux	10
CMA CGM	4	Ethiopian	(5)
Etihad	7	Lufthansa Cargo	7
Silk Way West	2	Silk Way West	2
Singapore Airlines	7	Qatar Airways	34
Undisclosed	4		
TOTAL	39		55 (5)

Source: Cargo Facts Consulting, Boeing, Airbus, Company Announcements as of October 2023

The 777 conversion programs received most of its orders in 2021 and 2022 as well.

IAI	Mammoth	KMC
Hongyuan Group: 11 orders (+9 options)	Jetran / DHL: 9 orders	Backbone Freighter: 3 (+7 options)
EVA Air: 3 orders	AviaAM Leasing: 6 orders	
CargoJet: 4 orders	CargoJet: 4 orders	
Emirates: 10 orders	Undisclosed: 16 orders	
Challenge Group: 4 orders		
Fly Meta (AerCap): 4 orders		
GECAS: 15 orders (+15 options)		
Total: 51 orders (+24 options)	Total: 35 orders	Total: 3 orders (+7 options)

Source: Cargo Facts Consulting, Cargo Facts FAT Database, Company Announcements as of October 2023

Overcapacity or lack of capacity? There are excessive freighters on order, but not in all segments.

- The general excess, determined by the number of freighters orders (production and conversions), in comparison to the active fleet, stands at approximately 38%, which is twice the usual rate of 20%.
- Although there are concerns regarding the narrowbody segment, CFC sees a shortage of significant widebody capacity entering the market, notwithstanding the existing air cargo weaknesses.
- The commencement of service for newly-built freighters (A350F and B777-8F) is not expected until 2026 & 2027.
- More than 125 widebody freighters that are older than 30 years will be retired within the next 5-10 years.

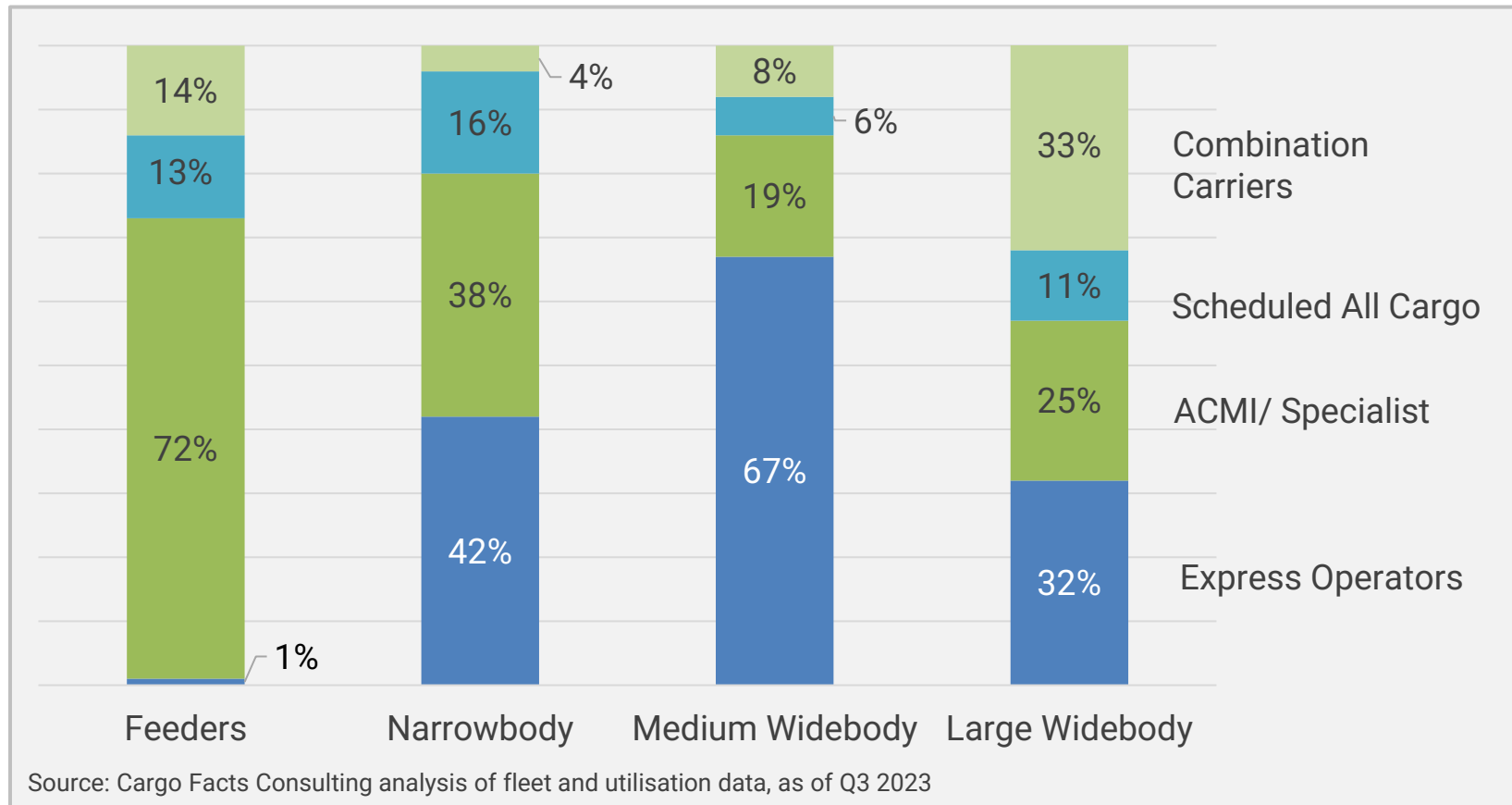
Production delays from OEMs is preventing the release of feedstock for widebody conversions, impacting the market.

- Strong demand for large widebody aircraft in the passenger market may last for at least three to four years.
- Over 120 widebody freighters are expected to retire within the next five to ten years, and current conversion programs would likely not make up for the difference in lift capacity.
- Any delays in the A350F / 777-8F programs could extend the lack of capacity.
- A gap in nose-loading capacity is now left after the 747-8F production.

Freighter Forecast

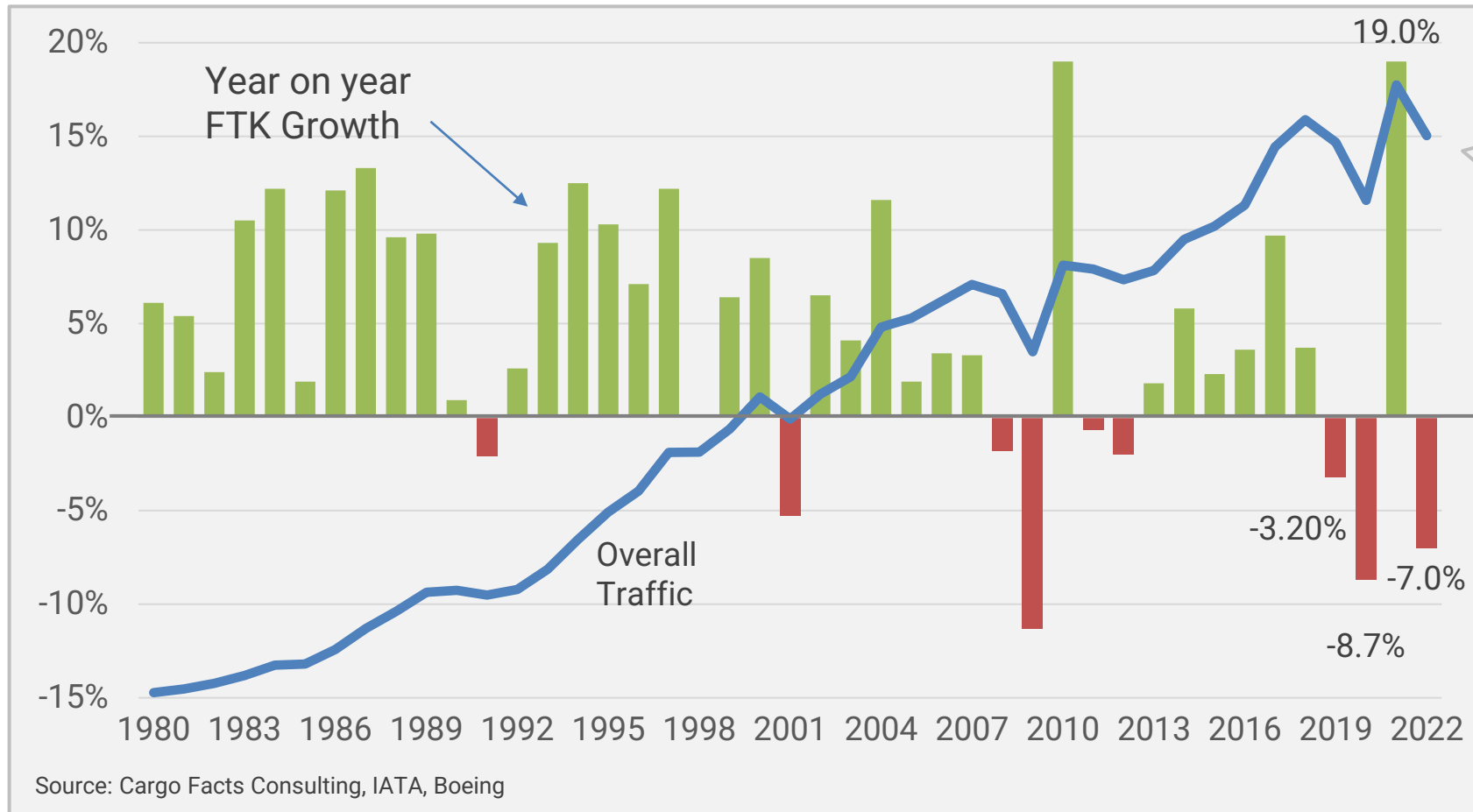
The operator mix varies substantially across segments. The large widebody segment is home to a diverse set of operators, but everything else is all about express.

Freighter Fleet by Carrier Business Model



Two thirds of the world's freighter fleet are operated by or on behalf of 5 companies – FedEx, UPS, DHL, Amazon and SF Express.

2022 full-year traffic for air cargo took a significant step back from 2021 levels but was close to 2019 performance.

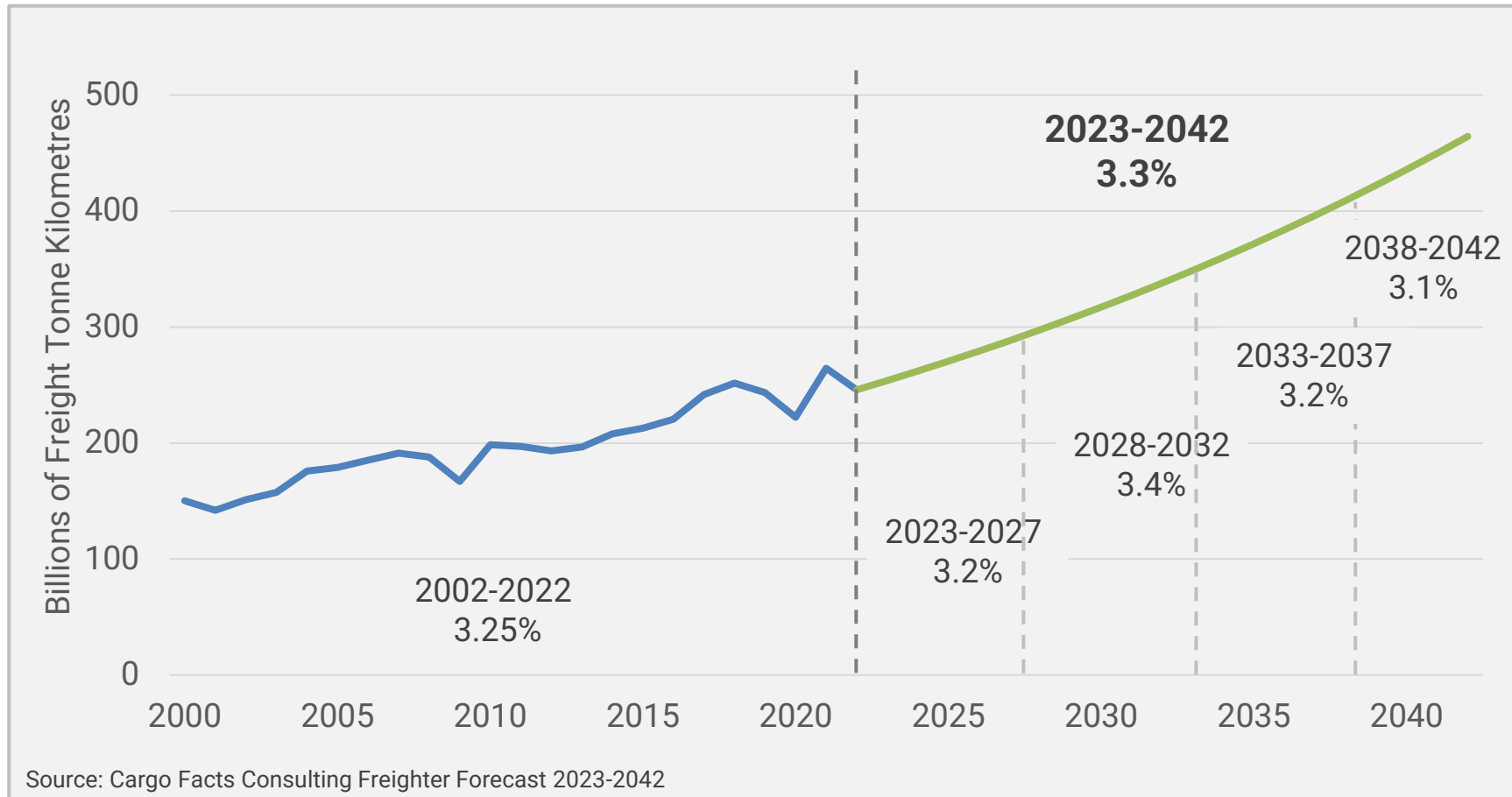


Until 2004, 10 year average annual growth was over 6%, but then started declining to under 2%.

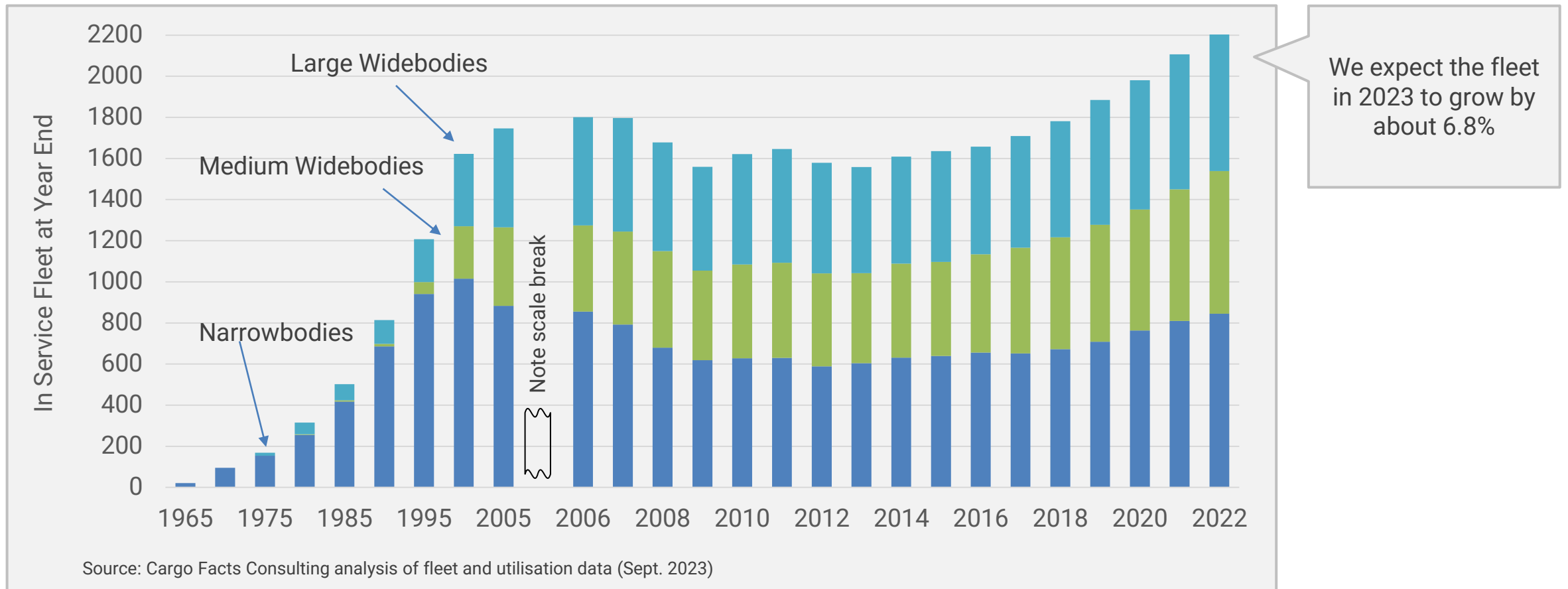
From 2014 rates were trending upwards again.

Cargo traffic growth has been volatile since the beginning of COVID-19.

In the long term we expect global air cargo to grow at around 3.3% per annum.



The world freighter fleet grew by over 5% in 2022. Most growth in recent years has been in the medium widebody segment.

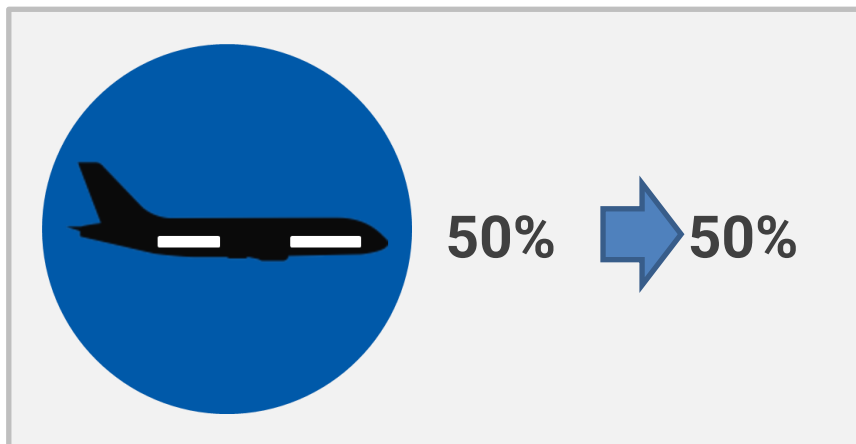
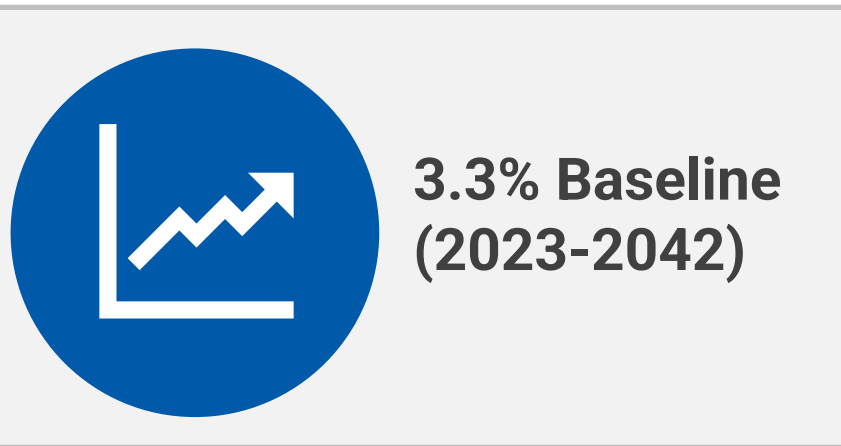


**The world jet freighter fleet currently consists of about 2,200 aircraft.
The feeder fleet is approximately 230 aircraft.**

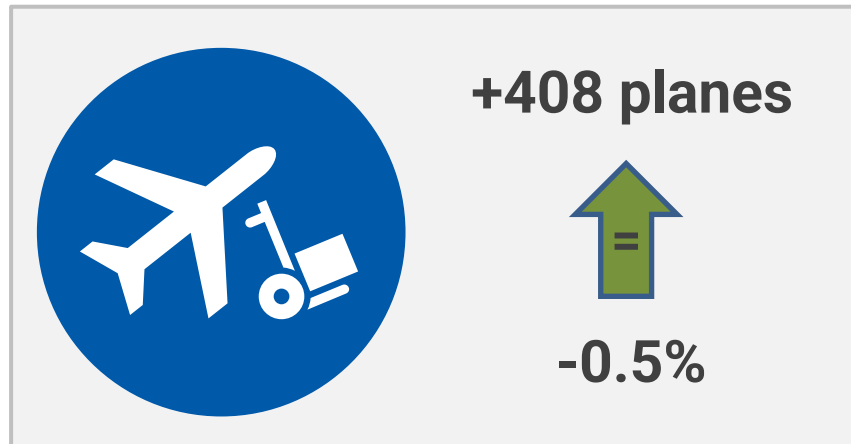
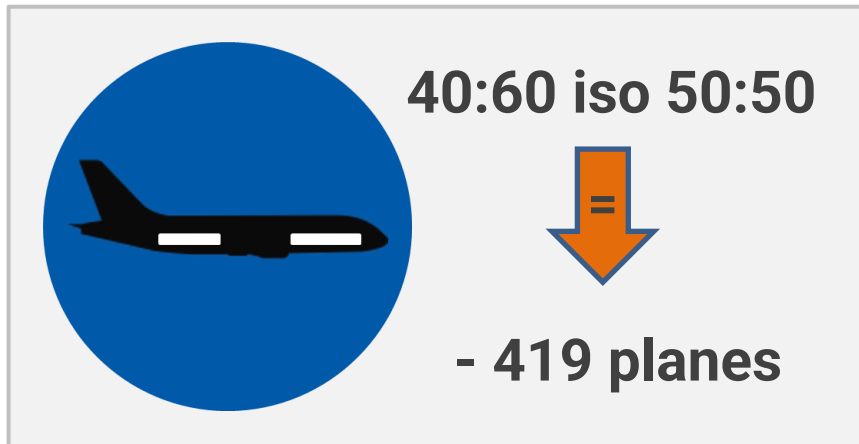
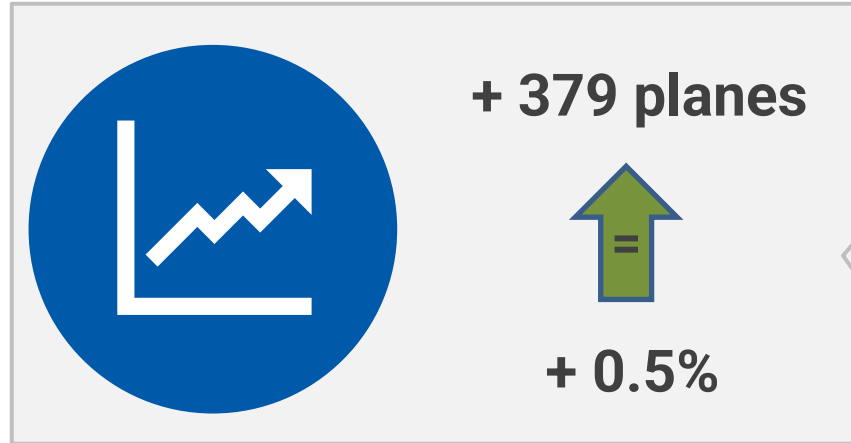
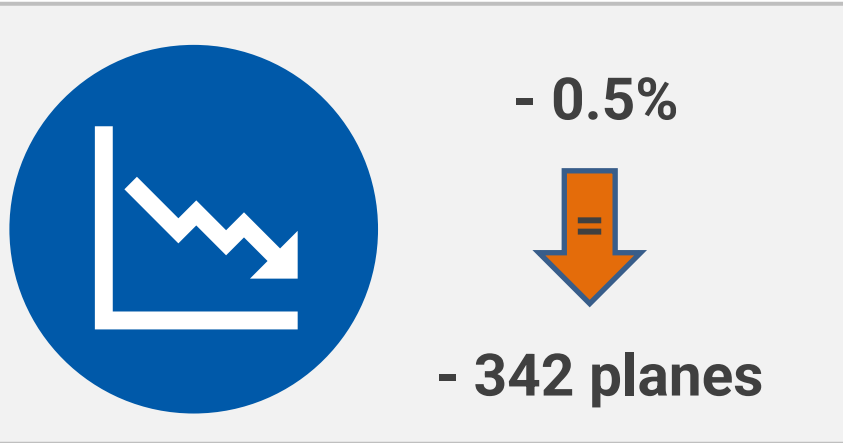
Narrow Body 3Q 2023 (2022)	Medium Widebody 3Q 2023 (2022)	Large Widebody 3Q 2023 (2022)
<i>< 85,000 lbs (< 40 tonnes)</i>	<i>85,000 – 180,000 lbs (40 - 80 tonnes)</i>	<i>> 180,000 lbs (> 80 tonnes)</i>
845 (+5%) Total Units	694 Total Units (+8%)	667 Total Units (+3%)
8 BAe 146 20 DC-9, 22 MD-80 9 737-200 28 727-100/-200 133 737-300, 140 737-400 9 737-700, 135 737-800 25 A321-200 312 757-200	3 A310-300F 2 A300B4, 160 A300-600 38 A330-200F, 8 -200P2F 15 A330-300P2F 57 767-200 225 767-300F 186 767-300BCF/BDSF 0 MD/DC-10-10	5 MD/DC-10-30/-40 105 MD-11F/CF 239 777-200F 5 747-200/300 47 747-400SF/BCF 146 B747-400F/ERF 120 B747-8F

Source: Cargo Facts Consulting, Cargo Facts, Ch-Aviation. Refers to operating fleet in September 2023.

Our forecast is driven by key assumptions on traffic, productivity, and belly share and estimate of retirements.



Small changes in key drivers – traffic growth, shift to bellies and productivity have large impacts.



We have not modelled the impact of individual company decisions.

Particularly in the case of Amazon, the growth of its airline operation has been driven more by logistics strategy than underlying market demand.

Amazon has over 100 dedicated aircraft today – almost 5% of the world's freighter fleet, but a change in strategy could have profound impacts.

The CFC forecast reflects our assessment of future product strategies to determine which specific aircraft types will be offered as jet freighters.

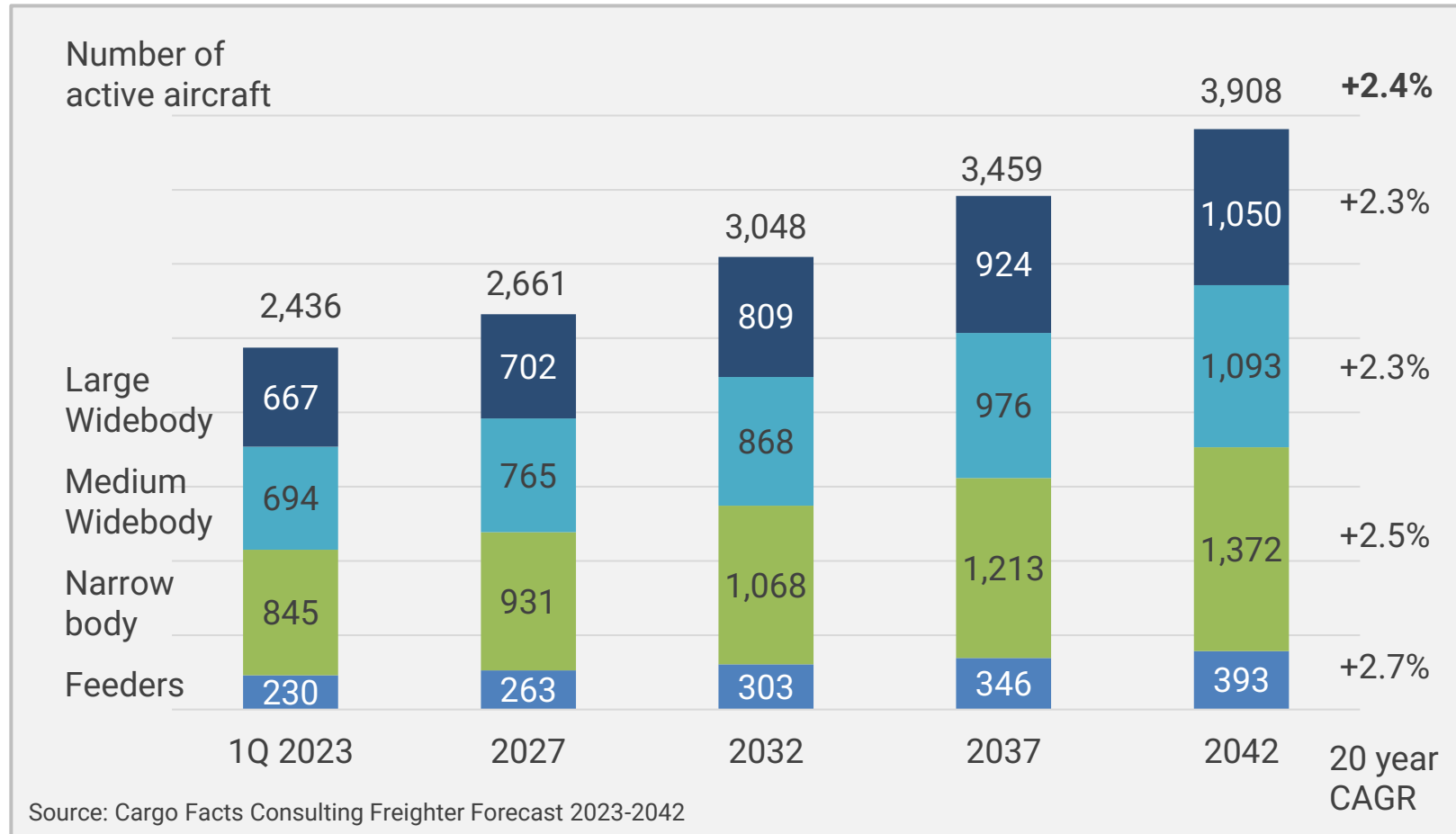
	Narrowbodies	Medium Widebodies	Large Widebodies
Facing near-term extinction	DC-9, 727, Bae 146, 737-200	A300B4, A310	747 Classics, DC/MD-10-30/40
At peak use, or with little future growth potential	MD-80, 737-300/400, 757-200	767-200, A300-600, A330-200F	747-400F/ERF, 747-400SF/BCF, MD-11F/CF, 747-8F
Expanding role going forward	737-700/800, A321/320	767-300F/BDSF/BCF, A330-200/300P2F	777-200F
Planned or Potential Future aircraft ?	737-900	787XF, A330-900F	777-300ERSF, 777-200LRSF, A350 F/P2F, 777-8F

Likewise, in the regional segment we consider all strategies across the different options.

	Turboprops/ Regional Jets
Facing near-term extinction	CV 580, HS 748, Fokker F27/50, Bae ATP
At peak use, or with limited future growth potential	ATR 42, CRJ-200, Saab340/2000, Dash 8-Q300
Expanding role going forward	ATR 72-600, ATR 72 conversions
Future aircraft	Dash 8-Q400, E190/195

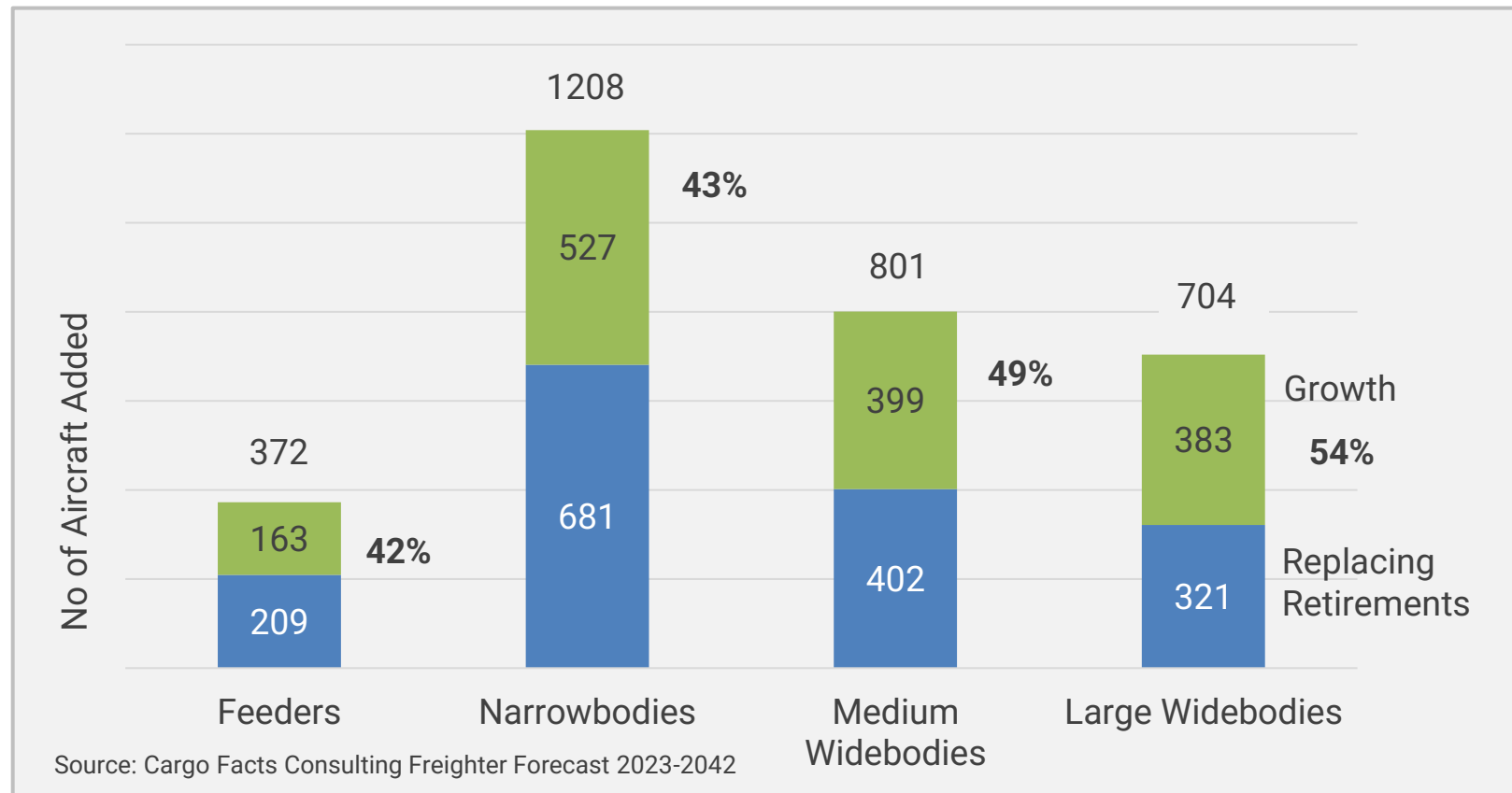
Source: Cargo Facts Consulting Freighter Forecast 2023-2042

Over the next 20 years we expect the world's freighter fleet to grow by 2.4% per year from about 2,430 aircraft today to around 3,900 in 2042.



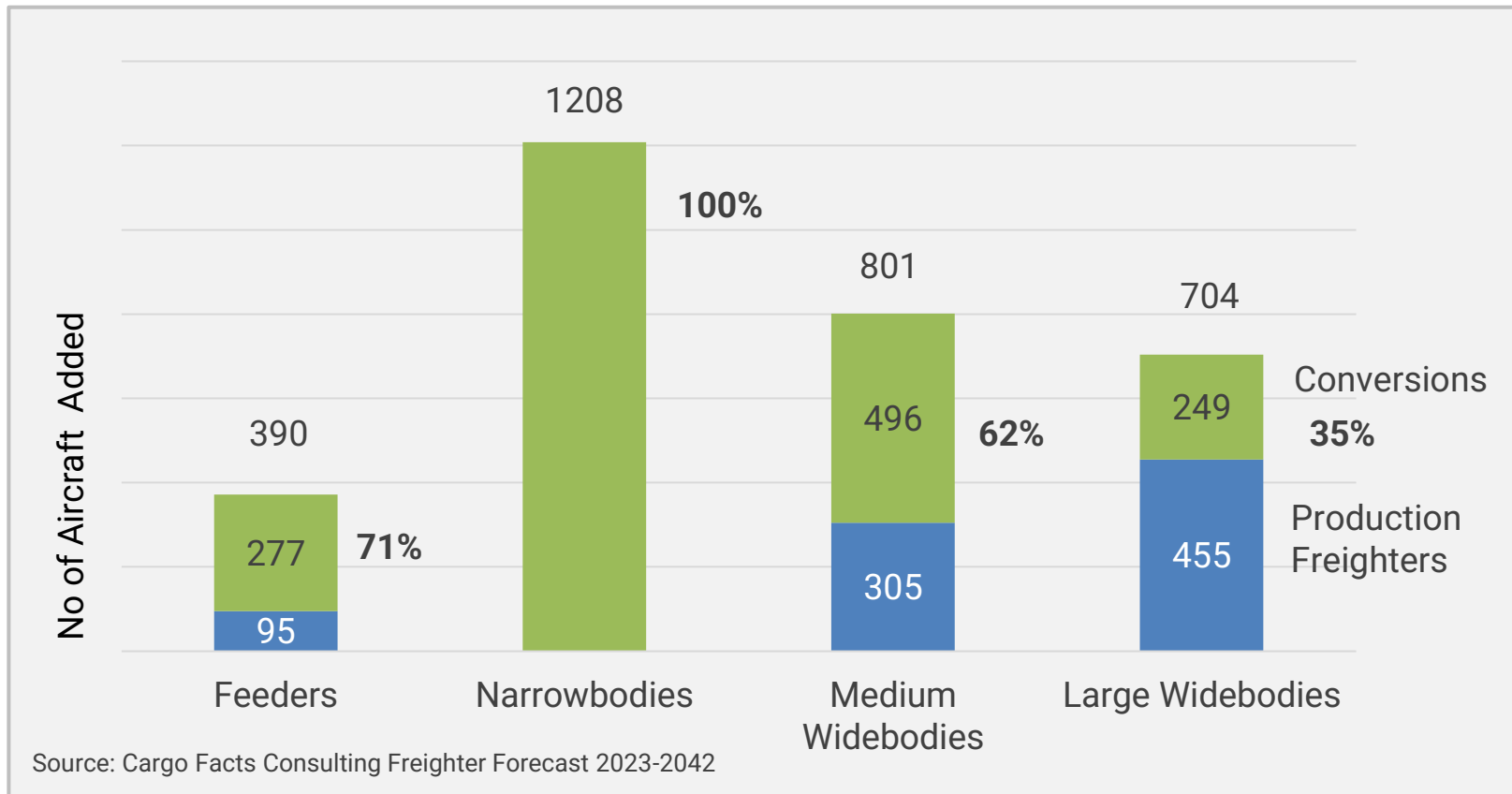
About half of freighter fleet additions are expected to replace retiring aircraft, the remainder is to cater for growth.

Freighter Fleet Forecast 2023-2042 Growth vs Retirements



Our forecast estimates that about 72% of freighter fleet additions will be converted aircraft, but this varies substantially across segments.

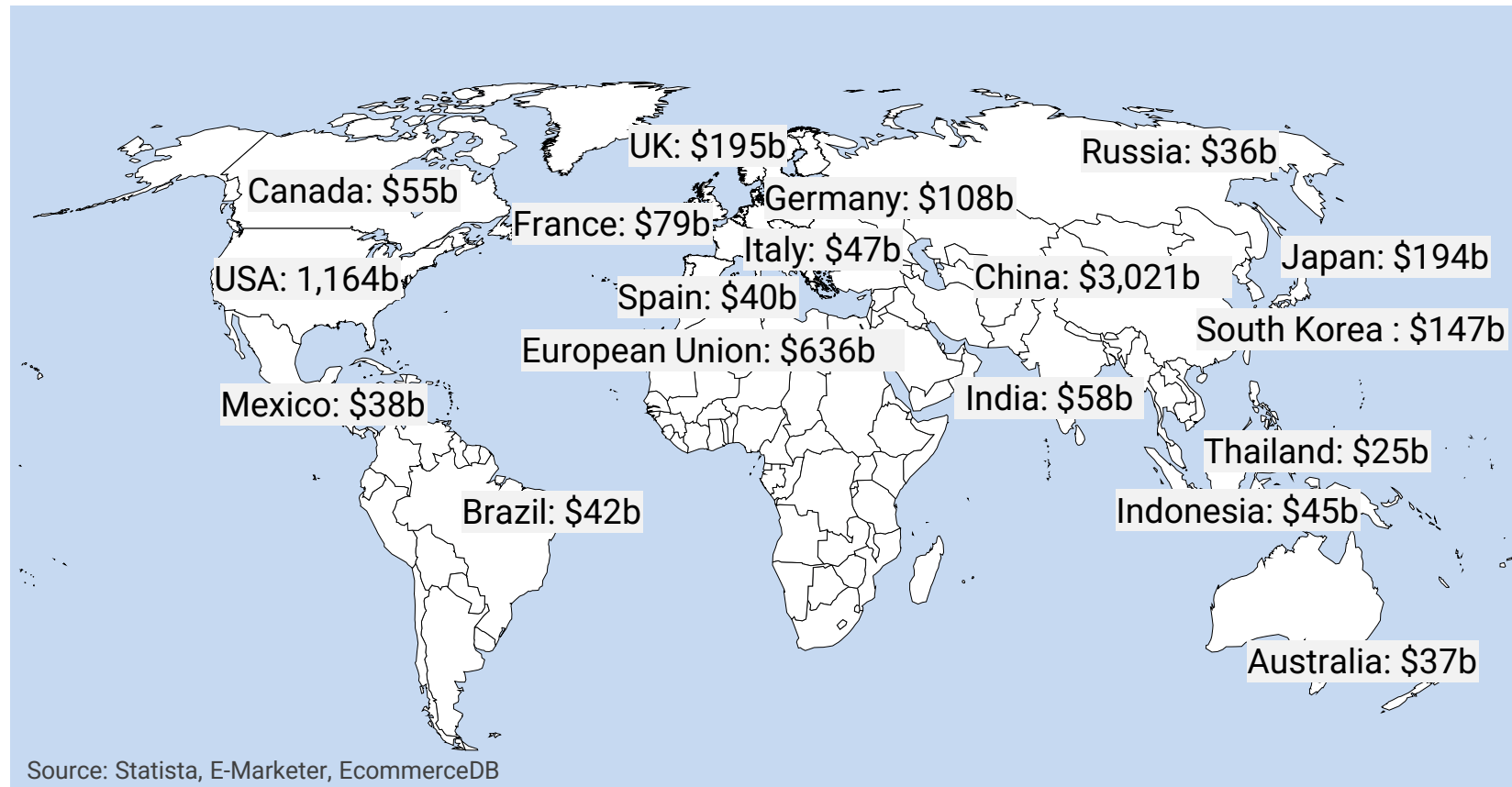
Freighter Fleet Forecast 2023-2042 Conversions vs Production Freighters



E-commerce & Express Indicators

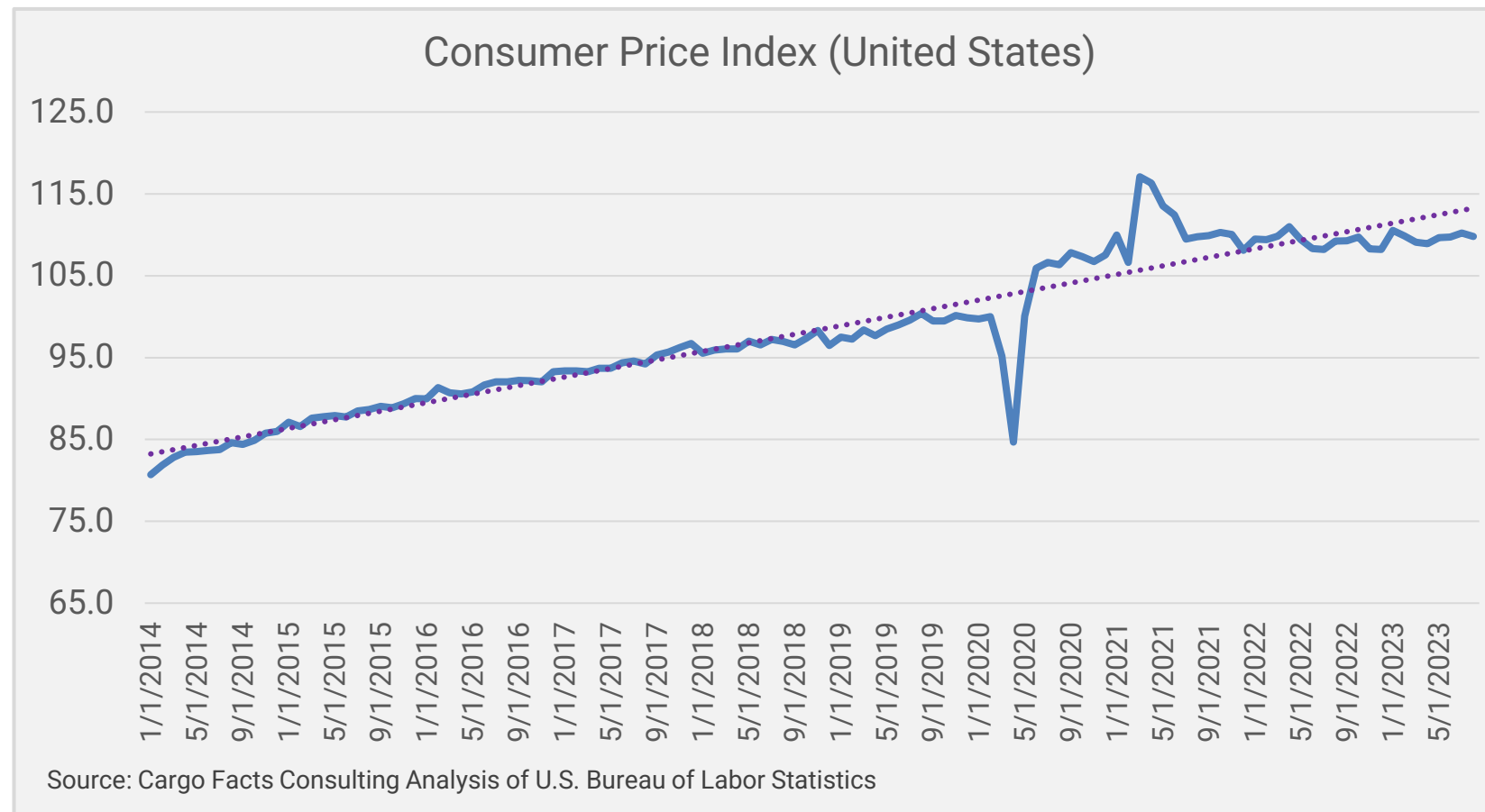
China, the US, the European Union, Japan and the UK are the largest domestic e-commerce markets. India is the fastest growing market.

E-Commerce Revenue by Market 2023*



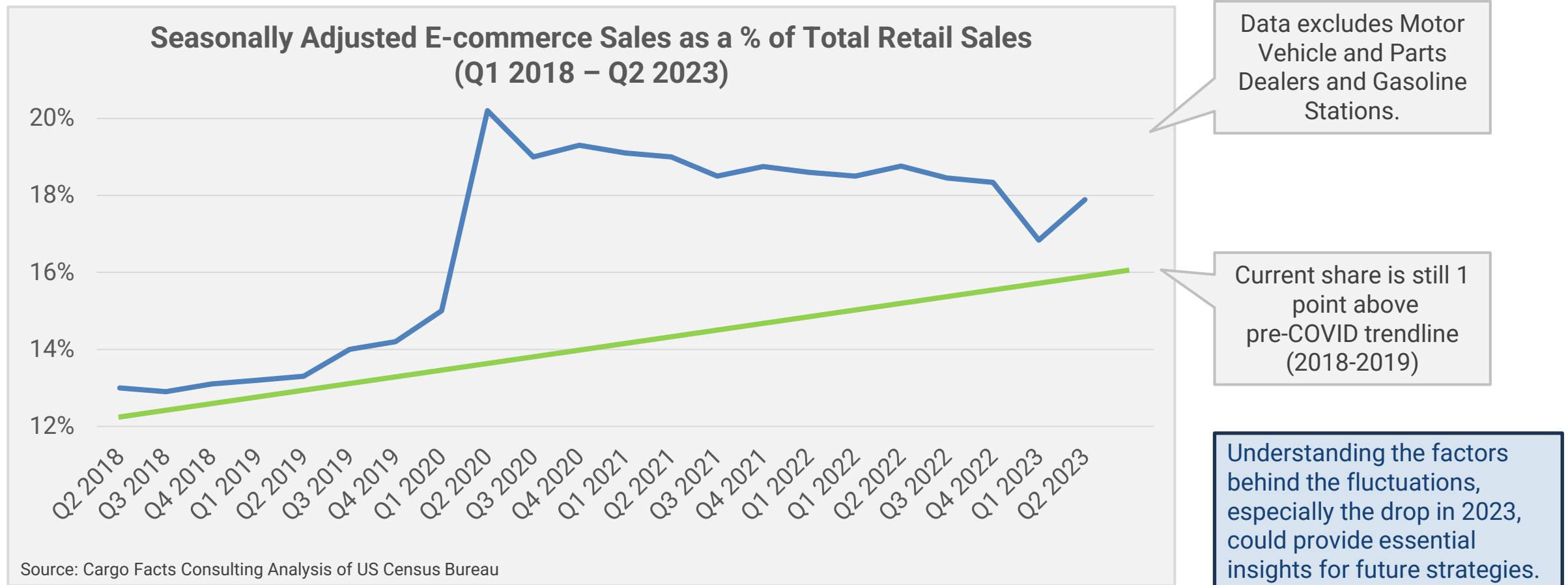
- India's e-commerce market size grew over 27% in the last 12 months.
- 8th largest global market after Canada.
- Expected to show CAGR of over 13% over the next 4 years, resulting in market volume of \$96 billion by 2027.

There are no signs of a significant downturn in consumer spending; sales volumes for this holiday season are expected to be similar to last year.



- U.S. consumer spending has remained strong in 2023 despite inflation.
- Retail sales surged post-COVID lockdowns due to stimulus money and limited spending but have been flat since July 2021.
- Our forecast for Q4 2023 suggests stable, inflation-adjusted sales, possibly down 1-2% due to economic uncertainties and higher interest rates.

US e-commerce sales activity during the second quarter saw a rebound in e-commerce as a percentage of retail trade sales.



In Q2 there is a trend of decreasing volumes and stable yields. E-commerce penetration continues to decline, while B2B shows signs of stabilization.

Q2 Carrier Performance by Market

Company	International Export Volume	International Export Yield	Domestic Volume	Domestic Yield
DHL (Q2 2022 – Q3 2023)	- 7 %	+ 2%	--	--
FedEx (Q1 2023 – Q1 2024)	- 15 %	- 1 %	- 18 %	+ 2 %
UPS (Q2 2022 – Q2 2023)	- 9 %	- 4%	- 15%	+ 1%
SF Express (Q2 2022 – Q2 2023)	--	--	+ 2%	+ 12%

Generally, domestic yields are anticipated to remain low yet steady, partly attributed to the current reduced cost of fuel but this might change during the peak season.

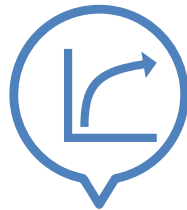
Source: Analysis of company financials, UPS domestic volumes exclude Ground, SF domestic volumes do not. For UPS and FedEx domestic represents US, for SF Express, domestic represents China. As of 25 Sept. 2023

FedEx Q1 2024: Thriving through cost efficiency amid market challenges

- FedEx's strategic cost-cutting measures, particularly in its Express unit, led to an 18% YoY increase in operating income, outpacing a 9% revenue decline and beating Wall Street expectations.
- FedEx Ground had a record quarter, with a 59% increase in operating income, driven by yield improvements and operational efficiencies.
- Additional business diverted from UPS and gains from the collapse of Yellow Corp have given FedEx short-term volume boosts, and the company intends to retain this business.
- Despite a challenging market, FedEx has downgraded its full-year revenue outlook to flat over fiscal 2023, but continues to invest in its workforce, raising questions about how it will respond to wage hikes at UPS.

Summary, Outlook and Key Takeaways

Air cargo players must be ready to keep facing challenges ahead in a softening market.



CARGO KPIs DOWN

Global air cargo volumes (-5%), revenues (-20%) and yields (-20%) to decline in 2023 but air freight rates have reached their lowest points.

MARKET NORMALIZATION

Normalizing market in sight after three years of unusual activity.

Dynamic and volatile industry requires flexibility.

ELEVATED FREIGHTER DELIVERIES

Another year ahead of high number of converted and production freighter deliveries.

Recovery of belly capacity keeps putting downward pressure on yields.

OPPORTUNITIES?

Specialized cargo, e-commerce (cross-border)

Upside risks: end of Russia-Ukraine war, rebound of consumer confidence, spending, investment, intl. trade.

Key takeaways and global air freight outlook through the end of 2023.

- In the global air freight sector, results for Q3 2023 show a **positive outlook** for the end of the year.
- **Rate Improvements and Seasonal Uptick:** After a period of stagnation, airfreight rates have started to rise. The industry is entering its busy season, and rate increases are expected to continue, providing a much-needed boost to revenues.
- **Capacity and Demand Dynamics:** Capacity should remain stable or even decrease through the end of the year, while demand will see a slight rebound.
- **Holiday / Peak Season:** Expectation of higher shipping volumes vs. 2023YTD but flat vs. 2022. (2-3 % higher).

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- Freighter Forecast -

Analysis of recent developments and trends across the feeder, narrowbody, medium and large widebody freighter segments.

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AIRCRAFT

Meeting Demand: The Future of Aircraft Conversions and Feedstock Availability

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— Express Market —

Historical overview and five-year growth forecast of key international and domestic air express markets.

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EXPRESS

Analyzing current yields: Unveiling financial strategies in the express cargo industry

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E-commerce Market

Examination of domestic and cross-border e-commerce, and its effect on key segments.

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E-COMMERCE

Amazon network grows amid layoffs

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Market FutureWatch

Analysis of the latest air cargo trends and insights, including market forecasts, sustainable practices, and updates from carriers, lessors and freight forwarders.

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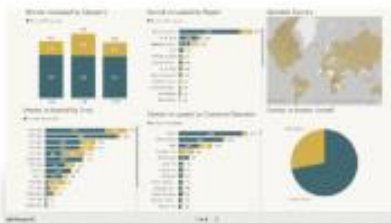
Freighter Forecast Tool



Freighter Feedstock Tool



Lessor Freighter Market Shares



Cargo Traffic and Growth by Airport



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