



## I. EXPERT STATEMENT

### AIRLINE SECTOR DOUBLES PROFITS

Continuous growth and oil prices at their lowest level since 2004 are creating an encouraging climate for the aviation sector. Compared to 2014, profits have almost doubled and having risen up to US\$ 33 billion. No doubt, the sector can look back on an extremely successful year in 2015. North America in particular was a major driver of this development: over half of global profits were generated by North American airlines.

Industry profits  
keep rising ↗

The correlation between the positive development of the world economy and air traffic is apparent. Passenger numbers developed positively with growth of 6.5 % in 2015. Along with continued robust economic development, cheaper air fares – resulting from low oil prices – also contributed to the rise of private aviation. A new record was achieved in November 2015 with aircraft capacity utilisation of 81.2 %. In 2015, investors did well with investments in airlines: the return on capital invested by airlines attained a level of 8.3 %. For 2016, IATA anticipates another slight increase in returns 8.6 %.

Low air fares increase  
private aviation ↗

The last few years have shown that good returns on capital investments by airlines generally go hand-in-hand with increased investment in new aircraft. This is reflected in the IATA forecast for the global fleet: for 2016, IATA is anticipating the global aircraft fleet to grow by 3.9 % to 27,889 aircraft. A significant portion of that will be aircraft with propeller turbines, known as turboprop aircraft, which represent an interesting alternative to regional jets due to their fuel efficiency.

Good returns on invested  
capital lead to  
increased investments ↗

Jochen Hörger  
Managing Director Aviation

## II. FOCUS ON MARKET DATA

### KEROSENE PRICE AT RECORD LOW

**+ 3.4 %**

The International Monetary Fund (IMF) is anticipating the global economy to grow by 3.4 % in 2016. In 2015, global growth was at 3.1 %.

Trend: ↗

Liquidity on financial markets continues to be high. Investors in the sector are seeing high returns on capital invested by airlines were 8.3 % in 2015. This development is boosting interest in aircraft investments.

Trend: ↗

**US\$ 64/b**

In 2015, the average kerosene price was US\$ 63.9 per barrel. According to the U.S. Energy Information Administration, the price fell to below US\$ 40 per barrel in early 2016.

Trend: ↘

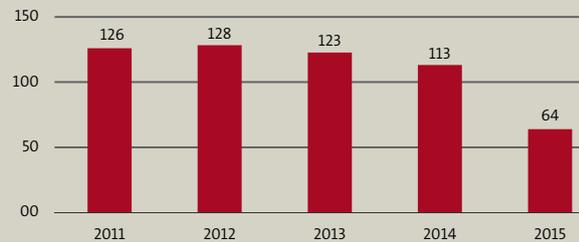
**80.4 %**

For 2016, IATA is anticipating solid capacity utilisation in passenger traffic. The passenger load factor (ratio of seat kilometres sold to seat kilometres available) should remain stable at 80.4 %.

Trend: →

Trend: ↘

Aviation fuel price in US\$/b (2011-2015)



Passenger load factor in % (2012-2016)



**+2.8 %**

After a moderate increase (+1.7 %) in freight volumes (tonne-kilometres transported) in 2015, IATA is anticipating 2.8 % growth for 2016.

Trend: ↗

**+ 6.7 %**

For passenger volumes, IATA is anticipating a global growth of 6.7% in 2016, after 6.5% in 2015.

Trend: ↗

Air freight in million tons (2012-2016)



Passenger figures in million (2012-2016)



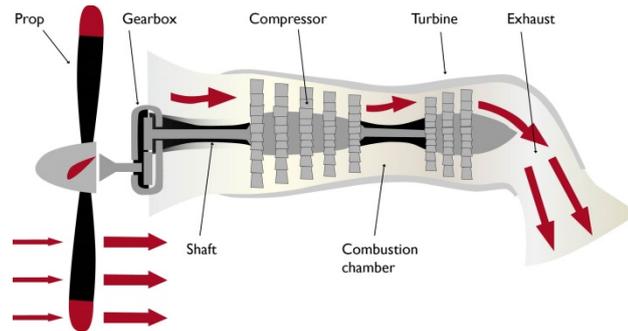
### III. ON CLOSER SCRUTINY

#### WHAT MAKES TURBOPROP AIRCRAFT SO EFFICIENT?

Regional aircraft are used to operate short and medium haul routes. A distinction is made here between aircraft with propeller engines and jet engines: aircraft with propeller engines (turboprops) cut a striking figure with highly efficient technology. A look at how the engine functions shows why turboprops are so economical: the entire thrust is produced by the free propeller driven by a turbine.

Turboprop vs. Turbofan

TURBOPROP ENGINE



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In aircraft with turbofan engines (jets), the boost is generated by an enclosed propeller, called fan, and the exhausting gas from the jet nozzle.

While turboprop aircraft are inferior to jets in term of maximum speed, they are characterised by higher propulsion efficiency and therefore better fuel efficiency. This means turboprop aircraft are predestined for use on short haul flights, on which a longer flight duration is often less significant.

High fuel efficiency with turboprop engines

On short haul flights and feeder routes, turboprops are an attractive choice for airlines as they are cost-efficient in terms of acquisition price and fuel consumption, while they don't compromise with respect to safety or passenger comfort. Using turboprops means routes can still be operated profitable even with a low seat load factor. Another argument in their favour is that at a flight speed of 500 to 700 km/h on typical regional/feeder flights, they are almost as fast as regional jets but with lower fuel consumption. Fuel savings vary depending on the route profile and aircraft type.

Profitable route operation with low seat load factor

An ATR 72-600 turboprop may save about 35 % of fuel on a 300 nautical mile route compared to a CRJ700 regional jet. Furthermore, Turboprops also require little space for take off and landing, making them a smart alternative to regional jets for airlines flying to small airports.

The purchase decisions of airlines reflect the advantages of this category of aircraft: in terms of orders of aircraft with up to 70 seats, the proportion of turboprops was more than 80 % in the period 2005 to 2014, and still more than 50 % for aircraft with up to 90 seats. Current orders are reported to be mainly for the Bombardier Q400 and ATR 72-600 models.

Turboprops as smart alternative to regional jets

**Our conclusion:** Investments in turboprop aircraft are an investment in the future. The propeller engine is the most efficient engine for short-haul flights. The continuing demand for efficient aircraft, the ongoing high need for feeder flights and the development of routes with lower passenger volumes all support growing demand for turboprops.

Investment in the future

## IV. OUTLOOK

### HIGHER FUEL EFFICIENCY WITH NEW AIRCRAFT MODELS

Protracted low interest rates offer stable cash flows and continued attractive return potential for investments in the asset class of aviation. Nevertheless, investments must be made with vision. The future progress of the oil price is not predictable. In the medium term, it is anticipated that oil prices will rise again, meaning that investing in modern, fuel-efficient aircraft will be of crucial importance for financial success, especially in the medium to long term.

Progress of oil prices  
not predictable

Such investments are also advisable with regard to the environmental significance of aviation. Improvements in fuel efficiency of 1.5 % per year constitute an essential element for the target of CO<sub>2</sub>-neutral growth from 2020 set by the aviation industry. According to IATA, this target was achieved in 2015, for 2016 a level as high as 1.8 % is anticipated. Increasing use of more efficient aircraft with the latest generation engines can significantly reinforce this development.

Aircraft are becoming  
increasingly fuel efficient

2016 will be a year of technical innovations and developments: both the Airbus A320neo and the Bombardier C-Series are to be put into service by the first airlines this year, and the maiden flight of the Boeing 737 MAX 8 is also planned for this year.

2016 - a year of  
new aircraft models

#### KGAL Expertise in Aviation

- Active in the aircraft segment since 1979
- More than 700 aircraft transactions
- 76 private placements and other investment models 58 retail funds in the aircraft segment Total investment volume of around EUR 6.0 billion

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