Malaysian Aviation Commission
Suruhanjaya Penerbangan Malaysia
MAVCOM

WAYPOINT

MALAYSIAN AVIATION INDUSTRY OUTLOOK | **MAY 2019**

KEY HIGHLIGHTS

Passenger traffic to grow by 2.9% – 4.1% YoY in 2019

In 2019, Malaysia's passenger traffic is forecasted to grow to 105.5mn – 106.7mn (2018: 102.5mn). MAVCOM expects **greater uncertainty ahead as global and domestic economic growth are forecasted to be marginally slower**. Global and domestic economic growth will be largely supported by domestic demand. Correspondingly, seats for domestic routes in Malaysia are expected to increase by 7.3% YoY (2018: 3.4% YoY) while expansion in the international market is expected to be minimal at 1.9% YoY (2018: 5.7% YoY).

Pressure on revenue, but lower fuel costs may provide respite in 2019

As passenger traffic growth for 2019 is forecasted to lag seats capacity, **there will be downward pressure on revenue for Malaysian carriers to reduce average fares to stimulate demand**. However, as the **average global crude oil price in in 2019 expected to be lower by 13.6% YoY** (2018: USD71/bbl), this may provide room for Malaysian carriers to price their products competitively to support demand in 2019.

Passenger traffic surpassed 100mn in 2018

Passenger traffic for Malaysia grew by 2.7% YoY to 102.5mn in 2018 (2017: 99.8mn) **driven by international passenger traffic** that grew by 5.5% YoY (2017: 13.8% YoY)—domestic passenger traffic growth was flat at 1.1% YoY (2017: 4.0% YoY). **Weaker 2018 passenger traffic growth was due to Malaysia's slower GDP growth of 4.7% YoY (2017: 5.9% YoY) and lower seats capacity growth** by Malaysian and foreign carriers of 6.4% YoY and 4.5% YoY, respectively (2017: 8.6% YoY and 15.6% YoY, respectively).

Malaysia received more tourists from beyond the Southeast Asian region

Data from the Ministry of Tourism, Arts and Culture showed that **tourist arrivals dropped 0.5% YoY to 25.8mn in 2018 (2017: 25.9mn), mainly contributed by fewer tourists from Singapore. Excluding Singapore, tourist arrivals into Malaysia increased by 11.4% YoY to 15.2mn in 2018 (2017: 13.6mn).** The data also showed higher tourist arrivals from China, South Korea, India, the United States, and Germany.

Negative spread between RASK and CASK more than doubled in 2018

Average **global jet fuel prices were higher by 28.8% YoY** in 2018 (2017: USD65/bbl). This contributed to an **increase in Malaysian carriers' average cost per available seat kilometre (CASK) by 5.1%** YoY to 17.8 sen (2017: 16.9 sen). At the same time, **average revenue per available seat kilometre (RASK) was marginally higher at 16.3 sen** (2017: 16.2 sen) as **average international fares fell 2.4% YoY** to RM486 and **average domestic fares remain unchanged** at RM221. Despite tempered capacity expansion in 2018 of 3.2% YoY (2017: 7.0% YoY) and flat RASK growth, average load factor dropped slightly to 81.8% (2017: 82.8%), signalling weak demand.

GLOSSARY OF SOURCES

Sources	
AirportIS	-
ASL Holders	Licence holders of ASL issued by MAVCOM
AOL Holders	Licence holders of AOL issued by MAVCOM
ASP Holders	Licence holders of ASP issued by MAVCOM
BNM	Bank Negara Malaysia
DOS	Department of Statistics, Malaysia
GHL Holders	Licence holders of GHL issued by MAVCOM
IATA	International Air Transport Association
IMF	International Monetary Fund
MAVCOM	Malaysian Aviation Commission
MOF	Ministry of Finance, Malaysia
MOTAC	Ministry of Tourism, Arts and Culture, Malaysia
Thomson Reuters	-
World Bank	-

TABLE OF ABBREVIATIONS

Abbreviations		Abbreviations	
AOC	Air Operator Certificate	KLM Airlines	KLM Royal Dutch Airlines
ASEAN	Association of Southeast Asian Nations	mn	million
ASA	Air Services Agreement	OPEC	Organization of the Petroleum Exporting Countries
ASK	Available Seat Kilometres	OTC	Over-the-counter
ASL	Air Service Licence	QoQ	Quarter-on-Quarter
ASP	Air Service Permit	RASK	Revenue per Available Seat Kilometre
ATAG	Air Transport Action Group	RHS	Right Hand Side
ATR	Air Traffic Rights	RM	Ringgit Malaysia
bbl	Barrel	Royal Jordanian	Royal Jordanian Airlines
CAAM	Civil Aviation Authority of Malaysia	RPK	Revenue Passenger Kilometre
CASK	Cost per Available Seat Kilometre	UAE	United Arab Emirates
Condor	Condor Flugdienst, GmbH	UK	United Kingdom
EIA	U.S Energy Information Administration	US	United States
Etihad	Etihad Airways	UNWTO	World Tourism Organization
GDP	Gross Domestic Product	USD	United States Dollar
GHL	Ground Handling Licence	WTI	West Texas Intermediate
GOM	Government of Malaysia	WTO	World Trade Organization
HHI	Herfindahl-Hirschman Index	YoY	Year-on-Year

MALAYSIAN AIRPORT CODES

No.	Airport Code	Airport Name	No.	Airport Code	Airport Name
1	AOR	Sultan Abdul Halim Airport (Alor Setar)	14	LDU	Lahad Datu Airport
2	BKI	Kota Kinabalu International Airport	15	LGK	Langkawi International Airport
3	BTU	Bintulu Airport	16	LMN	Limbang Airport
4	IPH	Sultan Azlan Shah Airport (Ipoh)	17	MKZ	Melaka Airport
5	JHB	Senai International Airport	18	MYY	Miri Airport
6	KBR	Sultan Ismail Petra Airport (Kota Bharu)	19	MZV	Mulu Airport
7	KCH	Kuching International Airport	20	PEN	Penang International Airport
8	KTE	Kerteh Airport	21	SBW	Sibu Airport
9	KUA	Sultan Ahmad Shah Airport (Kuantan)	22	SDK	Sandakan Airport
10	KUL	Kuala Lumpur International Airport	23	SZB	Skypark Terminal Sultan Abdul Aziz Shah Airport (Subang)
11	KUL-T1	Kuala Lumpur International Airport Terminal 1	24	TGG	Sultan Mahmud Airport (Kuala Terengganu)
12	KUL-T2	Kuala Lumpur International Airport Terminal 2	25	TWU	Tawau Airport
13	LBU	Labuan Airport			

OTHER AIRPORT CODES

No.	Airport Code	Airport Name	No.	Airport Code	Airport Name
1	ADL	Adelaide International Airport, Australia	13	HNL	Daniel K. Inouye International Airport, United States of America (Hawaii)
2	AKL	Auckland Airport, New Zealand	14	ICN	Incheon International Airport, South Korea (Seoul)
3	AVV	Avalon Airport, Australia (Victoria)	15	IKA	Imam Khomeini International Airport, Iran (Tehran)
4	BBI	Biju Patnaik International Airport, India (Odisha)	16	IST	Istanbul Ataturk Airport, Turkey
5	BKK	Suvarnabhumi Airport, Thailand (Bangkok)	17	JAI	Jaipur International Airport, India
6	BNE	Brisbane Airport, Australia	18	KIX	Kansai International Airport, Japan (Osaka)
7	CGK	Soekarno-Hatta International Airport, Indonesia (Jakarta)	19	KMG	Kunming Changshui International Airport, China
8	DPS	Ngurah Rai International Airport, Indonesia (Bali)	20	KWE	Guiyang Longdongbao International Airport, China
9	DTB	Silangit International Airport, Indonesia (North Sumatra)	21	LHR	London Heathrow, UK
10	FOC	Fuzhou Changle International Airport, China	22	MEL	Melbourne Airport, Australia
11	FRA	Frankfurt International Airport, Germany	23	MFM	Macau International Airport, Macau
12	HHQ	Hua Hin Airport, Thailand	24	MLE	Velana International Airport, Maldives

No.	Airport Code	Airport Name	No.	Airport Code	Airport Name
25	OOL	Gold Coast Airport, Australia	30	SYD	Kingsford Smith Airport, Australia (Sydney)
26	PER	Perth International Airport, Australia	31	TNA	Jinan Yaoqiang International Airport, China
27	PQC	Phu Quoc International Airport, Vietnam	32	VCA	Can Tho International Airport, Vietnam
28	RUH	King Khalid International Airport, Saudi Arabia (Riyadh)	33	WUH	Wuhan Tianhe International Airport, China
29	SIN	Changi Airport, Singapore			

LICENCE AND PERMIT HOLDERS

Abbreviations	
AirAsia	AirAsia Berhad
AirAsia X	AirAsia X Berhad
Firefly	FlyFirefly Sdn. Bhd.
MAHB	Malaysia Airports Holding Berhad
Malindo	Malindo Airways Sdn. Bhd.
MAB	Malaysia Airlines Berhad
Raya Airways	Raya Airways Sdn. Bhd.
Senai Airport	Senai Airport Terminal Services Sdn. Bhd.
SSSB	Sanzbury Stead Sdn. Bhd.

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SECTION 1: MACROECONOMIC OVERVIEW AND OUTLOOK

Macroeconomic Overview

Global Economy Grew by 3.6% YoY in 2018

The IMF reported that the global economy grew by 3.6% YoY in 2018 (2017: 3.8% YoY) (see Table 1), where growth was strong during the first six months of 2018 before it weakened in the last six months of the year. The IMF said that **the growth in the last six months of 2018 was dragged down by the weaker economic activities in large economies**. For example, the new fuel emission standards in Germany and the severe flooding in Western Japan (July 2018) and the earthquake in Hokkaido (September 2018) had resulted in slower GDP growth of 1.5% YoY and 0.9% YoY in 2018, respectively (2017: 2.5% YoY for Germany and 1.9% YoY for Japan, respectively). It was also highlighted that **indicators such as the industrial productions and purchasing managers' indices are pointing towards less-than-encouraging prospects of economic activities.**

Table 1: Global GDP Growth, 2017 – 2018

Economy	2017 GDP YoY Growth (%)	2018 GDP YoY Growth Estimate (%)
Global	3.8	3.6
- Advanced Economies	*2.4*	*2.2*
- Emerging Market Economies	*4.7*	*4.5*

Source: IMF

According to the BNM, **the GDP growth of emerging economies moderated in 4Q18** (see Table 2). Growth of the Chinese economy in 4Q18 was supported by higher levels of infrastructure investment, whereas other Asian economies were affected by lower investment and weaker external demand. This is despite the relatively steady growth in private consumption.

Table 2: Growth of Selected Economies, 2018

Selected Economies	1Q18 GDP YoY Growth (%)	2Q18 GDP YoY Growth (%)	3Q18 GDP YoY Growth (%)	4Q18 GDP YoY Growth (%)
Philippines	6.8	6.0	6.1	6.1
China	6.8	6.7	6.5	6.4
Malaysia	**5.4**	**4.5**	**4.4**	**4.7**
Indonesia	5.1	5.3	5.2	5.2
Korea	2.8	2.9	2.0	3.1
Singapore	4.3	3.9	2.6	2.2
Europe	2.5	2.2	1.7	1.2
US	2.9	2.8	3.0	3.1
UK	1.2	1.3	1.5	1.3

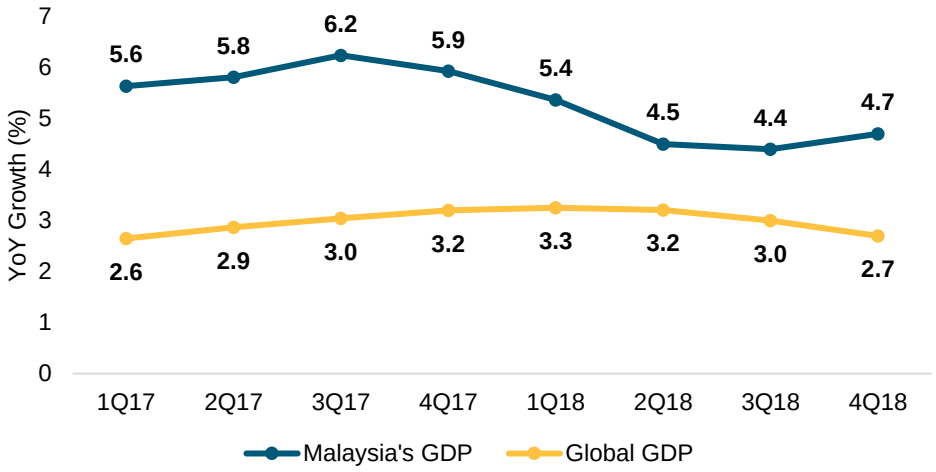
Source: BNM, Thomson Reuters

Malaysia's GDP Grew by 4.7% YoY in 2018

The Malaysian economy grew 4.7% YoY in 2018 (2017: 3.0% YoY) as **the economy was supported by continued expansion in domestic demand, as well as, strong demand for exports.** Domestic demand was mainly supported by private consumption as spending was boosted by the tax holiday period in 3Q18.

The BNM reported that the Malaysian economy grew by 4.7% YoY in 4Q18 (3Q18: 4.4% YoY) (see Figure 1), as the economy was supported by strong growth in domestic and external demands. As highlighted earlier, the tax holiday period in 3Q18 contributed towards the robust growth in private consumption. Special payments to civil servants and pensioners by the GOM also had a positive impact on consumer spending. On the external demand, the central bank highlighted that there was a front loading of exports globally in anticipation of higher trade tariffs between the US and China. This propped up the performance of the manufacturing sector in 4Q18.

Figure 1: Quarterly Malaysia's and Global GDP Growth, 2017 – 2018



Source: BNM, DOS, IMF, Thomson Reuters

Macroeconomic Outlook

Global Economy is Expected to Grow by 3.3% YoY in 2019

The IMF opined that the weak global economic growth reported in the last six months of 2018 may persist into the first six months of 2019, where growth will gradually recover during the second half of the year. **The IMF forecasts that the global economy will grow by 3.3% YoY in 2019 (2018: 3.6% YoY)** (see Table 3), where growth will be driven by the emerging market economies that are expected to grow by 4.4% YoY in 2019 (2018: 4.5% YoY). The advanced economies are forecasted to record an even slower growth of 1.8% in 2019. (2018: 2.2% YoY). The IMF said that its **global economic growth forecast is underlined by a mixture of sluggish growth of the advanced economies and expectation of a growth recovery in the emerging market economies**.

Table 3: Global GDP Forecast by IMF

Economy	2018 GDP YoY Growth (%)	2019 GDP YoY Growth Forecast (%)
Global	3.6	3.3
- Advanced Economies	*2.2*	*1.8*
- Emerging Market Economies	*4.5*	*4.4*

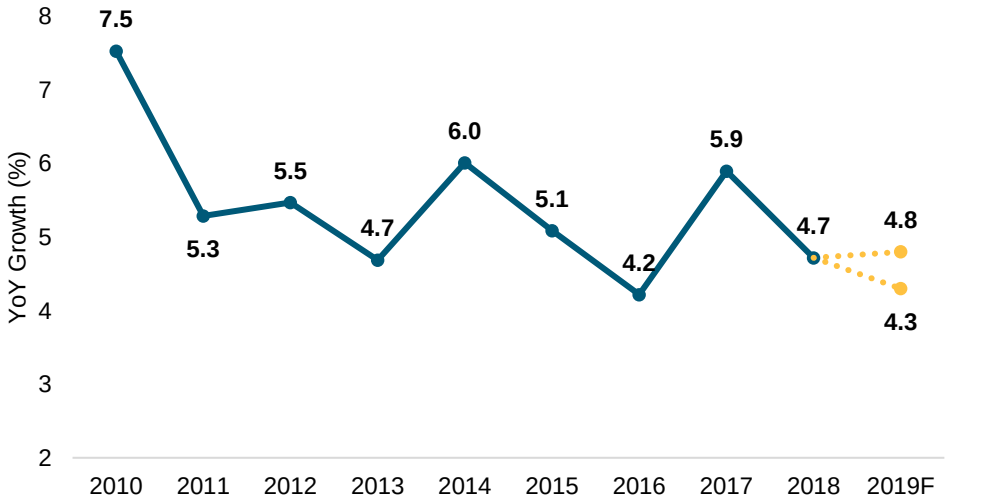
Source: IMF

Growth of the advanced economies will come from a gradual recovery from the sluggish second half of 2018. For example, as previously mentioned, German economic growth during the last six months of 2018 was attributable to weak domestic consumption resulting from the revised auto emission standards. In the US, the economy will mainly be supported by strong domestic demand growth. The emerging market economies will see growth to be weighed down by countries such as China, Turkey, and Argentina. The IMF expects stimulus measures in China to support economic growth in the country, while Turkey and Argentina to inch out of recession in the second half 2019. Most of the recovery for these emerging market economies will come from the recovery of domestic consumption.

Malaysia's GDP is Expected to Grow by Between 4.3% and 4.9% YoY in 2019

For 2019, the Malaysian economy is expected to grow by between 4.3% and 4.9% YoY compared to the 4.7% YoY growth reported in 2018 according to the BNM (see Figure 2). The BNM continues to expect that the economy will be strongly driven by both private consumption and investment. Weaker global demand, potential escalation of trade tensions, as well as, the tightening of global financial conditions may provide further downside risks to the 2019 GDP forecast.

Figure 2: Malaysia's GDP Growth, 2010 – 2019F



Source: BNM, DOS, Thomson Reuters

The BNM recognised that the growth of the external sector to be quite moderate given the expectation of a sluggish global economic growth in 2019. Therefore, the central bank believes that the domestic activities will drive the 2019 economic growth, in particular, consumer spending that will benefit from continued employment and income growth. As an illustration the BNM reported that, according to employers surveys[1], salary increments in 2019 are expected to hover around 4.9% – 5.2% YoY. It was also highlighted that several measures introduced by the GOM such as the price ceiling on retail fuel prices, higher minimum wage, and Bantuan Sara Hidup cash transfers will provide support to consumer spending.

[1] Based on Malaysian Employers Federation Salary Survey and Korn Ferry's and Mercer's Total Remuneration Surveys.

The forecasts by the IMF, World Bank, and market consensus fall within the BNM's forecasted range (see Table 4). The forecasts are based on the expectation that the Malaysian economic growth in 2019 will mainly be driven by private consumption as the growth of public spending and private investment will taper off. Public spending growth is expected to slow down as the government rationalises its expenditures, while private corporations defer investments in anticipation of lower exports demand.

Table 4: Malaysia's GDP Forecasts by BNM, IMF, World Bank, and Market Consensus

Source	2018 YoY GDP Growth (%)	2019 YoY GDP Growth Forecast (%)
BNM	4.7	4.3 – 4.8
IMF	4.7	4.7
World Bank	4.7	4.7
Market Consensus	4.7	4.5

Source: IMF, Thomson Reuters, World Bank

SECTION 2: INDUSTRY OVERVIEW AND OUTLOOK

Industry Overview

Tourist Arrivals Declined in 4Q18, After a Short Rebound in 3Q18

The MOTAC data showed that **Malaysia's tourist arrivals declined by 1.0% YoY in 4Q18** (3Q18: 2.5% YoY) (see Figure 3). This was due to the significant fall in the number of tourists from Singapore and Brunei of 11.9% YoY and 10.3% YoY, respectively. Tourists from these countries made up 48.2% (4Q17: 53.8%) of total tourist arrivals in 4Q18. At the same time, **it was observed that tourists from Indonesia, China, Thailand, South Korea, India, Vietnam, the US, and Germany had increased significantly in 4Q18**. The share of tourists from these countries had increased from 33.4% in 4Q17 to 38.2%, almost offsetting the loss of tourists from Singapore and Brunei.

Figure 3: Quarterly Malaysia's Tourist Arrivals, 2017 – 2018

Source: DOS, MOTAC, Thomson Reuters

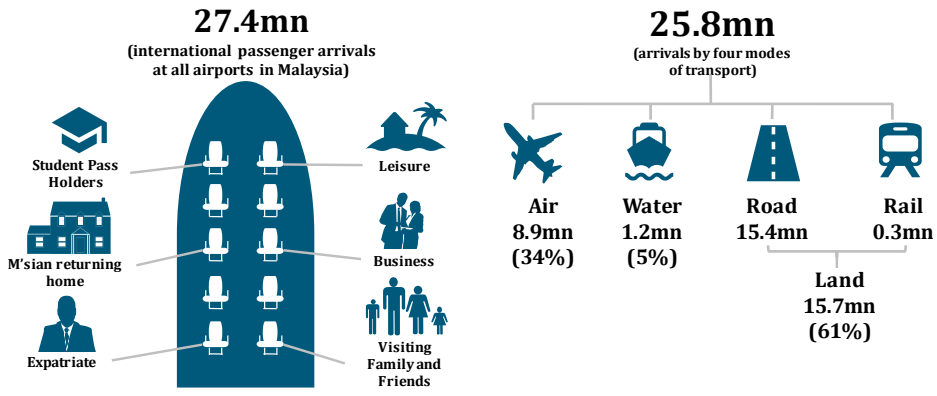
MOTAC reported that a total of 25.8mn tourists visited Malaysia in 2018 (2017: 25.9mn), which was a decline of 0.5% YoY. The decline was lower than the 3.0% YoY fall in tourist arrivals in 2017. Having said that, Malaysia is the only ASEAN member state that reported a decline in tourist arrivals in 2018. **Share of tourists from Singapore and Brunei declined from 54.1% in 2017 to 46.5% in 2018 as the number of tourists from these countries fell by 2.1mn. Excluding these countries, tourist arrivals into Malaysia increased by 15.4% YoY to 13.8mn in 2018** (2017: 12.0mn). The lower tourist arrivals from Singapore was partially driven by worsened congestion on the Johor-Singapore Causeway due to insufficient number of immigration checkpoints and personnel at Woodlands.

The fall in tourist arrivals from Singapore was mitigated by an additional 1.6mn tourists from Indonesia, China, South Korea, India, Taiwan, the Philippines, Vietnam, the US, and Germany in 2018. This bodes well for the aviation sector in 2018 as air transport is probably the mode of transport of choice for visitors from these countries. The situation may not persist in 2019 as Malaysian carriers will be focusing their capacity expansion in the domestic market instead of the international market. Box 1 explains the relationship between international passengers, tourist arrivals, and ATR applications.

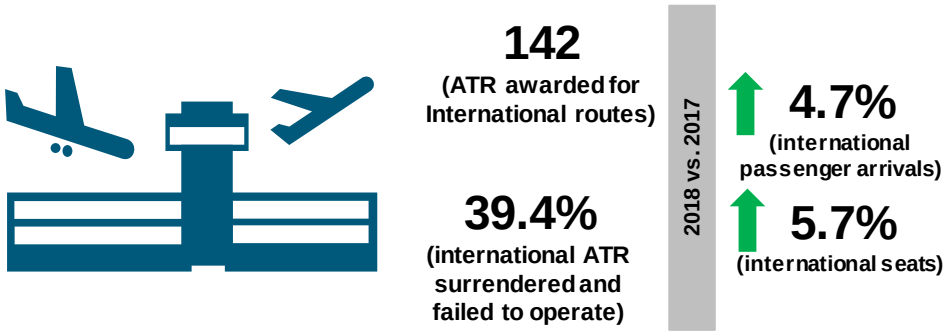
Box 1: International Passengers, Tourist Arrivals, and ATR Application

UNWTO defines a visitor as a traveller that takes a trip to a main destination outside his usual environment, for less than a year, for any purpose (either business, leisure or other personal purposes) other than to be employed by a resident entity in the country or place visited. A visitor is classified as a tourist if his/her trip includes an overnight stay. A Malaysian who returns from a trip overseas, an expatriate returning to Malaysia from his home country, or an international student, are not considered tourists. Therefore, out of the 27.4mn international passengers that flew into Malaysia in 2018, only 8.9mn are categorised as tourists. For example, a Malaysian returning from London to Kuala Lumpur is considered an international passenger based on his flight path but is not considered a tourist based on the UNWTO's definition.

In 2018, out of the 25.8mn international tourists' arrival to Malaysia, 15.7mn (61%) arrived by land transport (road and rail), 8.9mn (34%) by air, and 1.2mn (5%) by sea.



To operate any scheduled air services, airlines need to obtain ATRs as per the terms agreed in the respective ASAs. **In 2018, MAVCOM had awarded 205 ATRs (domestic: 63 and international: 142). Airlines are free to apply to MAVCOM for ATRs, based on a clear and transparent process, which has been developed with all Malaysian-based airlines.** Within that year, airlines had returned 58 ATRs (domestic: 2 and international: 56) to MAVCOM for re-allocation. This is due to airlines not using the ATRs granted to them within six months from the date of issuance attributed to commercial or any other reasons which have prevented their utilisation.



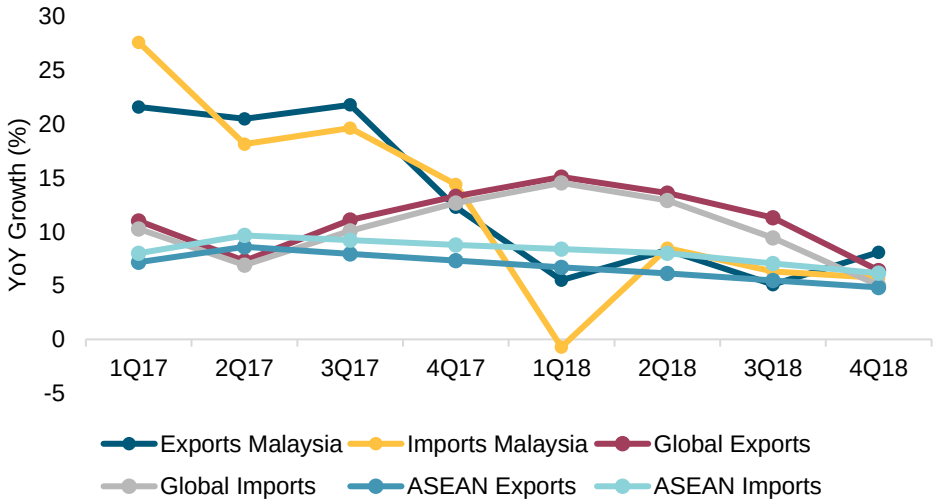
Source: MAVCOM Analysis, AirportIS, UNWTO

Slower Trade Growth in 2018

The WTO highlighted that global trade growth in 2018 was hindered by a series of factors, for example, the introduction of new tariffs, weaker economic growth, volatility in financial markets, as well as, tighter monetary conditions in developed economies. **The WTO reported that the global trade growth for 2018 was 3.0% YoY (2017: 4.6% YoY), which was below the WTO's forecast of 3.9% YoY in September 2018**. The WTO further expects the weakness in global trade to persist into the first six months of 2019.

Exports for Malaysia rebounded with a growth rate of 1.3% YoY in 4Q18 (3Q18: -0.8% YoY) (see Figure 4) despite the continued weak external demand that resulted from trade wars between the US and China. The BNM said that the growth was supported by demand for semiconductors, spurred by the establishment of a global electronics and electrical distribution hubs in Malaysia. It also added that exports growth globally and from the ASEAN region was slower in 4Q18 due to lower shipments to the US and Europe.

Figure 4: Trade Value Quarterly YoY Growth Trends, 2017 – 2018



Source: DOS, Thomson Reuters

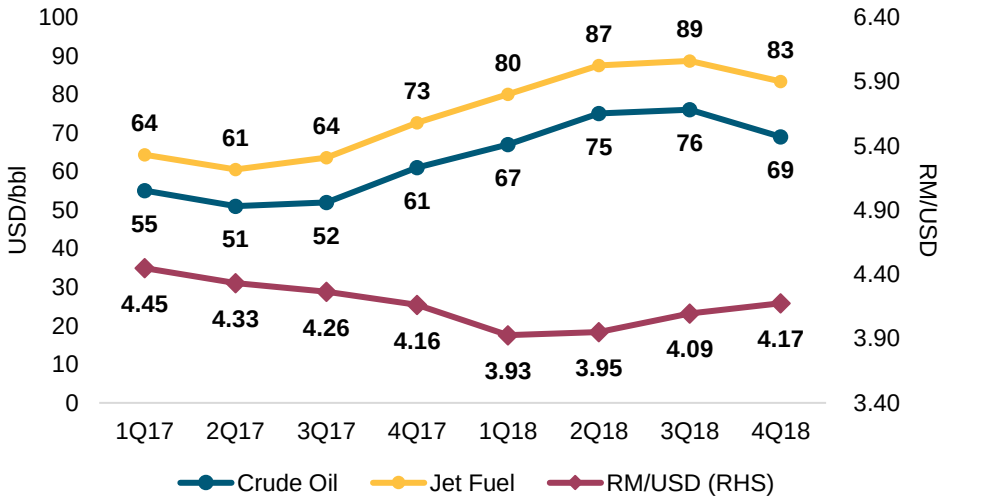
Unfavourable Trend of Jet Fuel Price, But Slightly Favourable Exchange Rate Trend

Global jet fuel prices continue to closely mirror that of crude oil. Following the steep decline of crude oil prices between 2014 and 2016 due to oversupply, **average global crude oil prices continued to rise in 2018 to USD71/bbl (2017: USD54/bbl)**. Crude oil's rise in 2017 was driven by coordinated production cuts by OPEC member states and Russia. Fears of a sudden spike in crude oil prices did not materialise as the shortfall in supply was partially mitigated by an increase in shale oil production from the US. In 2018, however, the continued coordinated production cuts by OPEC and Russia, as well as, a shortfall of supplies—from the US Gulf Coast, Libya, and the North Sea—contributed towards a further rise in crude oil prices. The effect from sanctions imposed by the US on major oil producers such as Iran and Venezuela also played a role in driving oil prices upwards. **Correspondingly, jet fuel prices increased**

by 28.8% YoY to USD85/bbl in 2018 (2017: USD66/bbl). Having said that, **the RM/USD exchange rate on average was more favourable in 2018 at RM4.04/USD (2017: RM4.30/USD)**, which somewhat mitigated the increase in jet fuel prices for Malaysian carriers.

In 4Q18, the global crude oil and jet fuel prices moderated to USD69/bbl and USD83/bbl, respectively (see Figure 5), which gave some respite to airlines. This was caused by concerns on weak demand for fuel due to the ongoing trade dispute between the US and China, as well as, the tightening monetary policy of the US. At the same time, the market also saw a potential increase in the supply of oil as the US increased production of shale oil. In addition, the EIA reported that the US' domestic oil stockpiles are at their highest levels over the past 12 months. While jet fuel prices have had reached its peak between 2Q18 and 3Q18, **the RM had weakened against the USD from 1Q18 onwards as it moved from RM3.93/USD to RM4.17/USD in 4Q18** (see Figure 5). Between 3Q18 and 4Q18, Malaysian carriers may benefit from the 6.0% QoQ reduction in jet fuel prices, but in terms of RM, the reduction in fuel expenses is slightly lower at 4.2% QoQ.

Figure 5: Oil, Jet Fuel, and Exchange Rate Trends, 2017 – 2018



Source: DOS, Thomson Reuters

Airlines typically manage the volatility of jet fuel prices in the short-to-medium term via a strategy called hedging. Hedging strategies and its impact on airlines' profitability are discussed further in Section 5 of this report.

Industry Outlook

Global Passenger Traffic is Expected to Grow by 6.0% YoY in 2019

The IATA estimated that the global passenger traffic in terms of RPK grew by 6.5% YoY in 2018, which was slower than the growth rate reported in the previous year (2017: 8.0% YoY). The IATA highlighted that the global passenger traffic growth rate in the last six months of 2018 was lower at 5.0% YoY compared to the 9.0% YoY growth rate reported in the first six months of 2018. This was due to increased indications of slower global economic growth in the last six months of 2018, including geopolitical developments such as Brexit and the trade tension between the US and China.

The Asia Pacific region was the fastest growing region for passenger traffic in 2018, where it reported 7.3% YoY growth (2017: 10.5% YoY) (see Table 5). The region reported strong growth during the year despite the disruption in Japan, following Typhoon Jebi that resulted in the closure of KIX in September 2018. The Asia Pacific region will also continue to be the main driver of global passenger traffic growth in 2019. According to IATA, India is the fastest growing domestic market as it grew 18.6% YoY in 2018 (2017: 17.5% YoY) underpinned by its strong domestic economy.

Table 5: IATA's Passenger Traffic Forecasts by Region

Region	2018 YoY Passenger Traffic Growth Estimate[2] (%)	2019 YoY Passenger Traffic Growth Forecast[3] (%)
Global	6.5	6.0
- North America	*5.0*	*4.5*
- Europe	*6.4*	*5.5*
- Asia Pacific	*8.5*	*7.5*
- Middle East	*4.7*	*5.5*
- Latin America	*6.0*	*6.0*
- Africa	*3.6*	*5.0*

Source: IATA

[2] Growth forecasts in terms of RPK.
[3] Growth forecasts in terms of RPK.

The IATA expects the number of destinations served by airlines in 2019 to increase further, along with flight frequencies, which will be the basis to support global passenger traffic growth in terms of RPK by 6.0% YoY (2017: 6.5% YoY) (see Table 6). Underlying global economic growth, as well as, expectation of lower average fares will also provide support to the growth assumption for 2019. The IATA highlighted that the average fares in 2019 are forecasted to be 61% lower than the average fares reported in 1998. **For global cargo traffic, the IATA expects significantly slower growth in 2019 of 2.0% YoY** compared to the 2018 growth of 3.5% YoY (see Table 6). The airline association cited a deteriorating macroeconomic outlook as the underlying reason for the weaker growth in 2019. Most of the growth for the cargo sub-sector in 2019 will be driven by the advancement of e-commerce as domestic consumption is expected to remain strong. This is in line with the WTO's view that reported a fall in its World Trade Outlook Indicator where the index had fallen to 96.3 in February 2019, which was below its baseline value of 100. **The WTO said that this indicated that trade growth to remain weak in 1Q19**.

Table 6: Passenger and Cargo Traffic Forecasts by IATA

Key Figures	2018 YoY Growth (%)	2019 YoY Growth Forecast (%)
Global Passenger Traffic[4]	6.5	6.0
Global Cargo Traffic[5]	3.5	2.0

Source: IATA

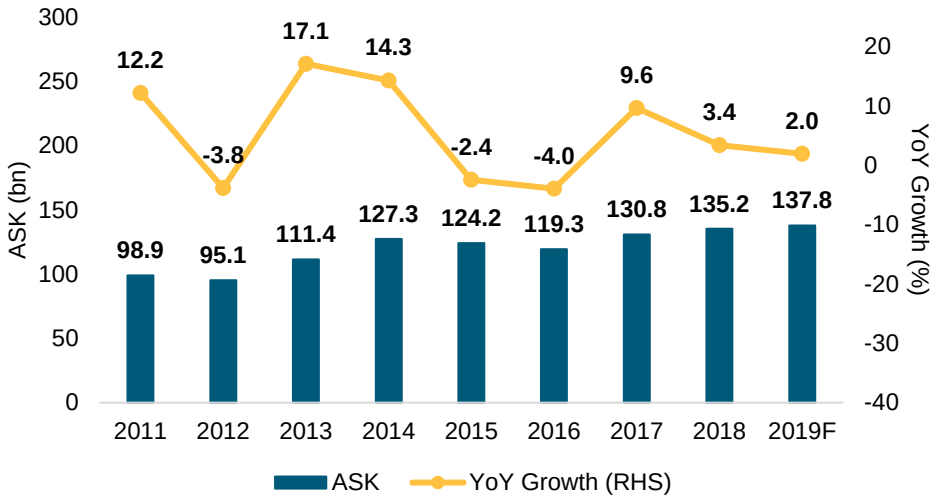
Malaysian Carriers to Increase Seats Capacity by 5.7% YoY in 2019

In 2018, the IATA reported that global capacity in terms of ASK grew by 6.0% YoY (2017: 6.6% YoY), where the growth was supported by higher flight frequencies. In terms of number of seats, global seats capacity increased by 7.5% YoY (2017: 5.2% YoY). During the year, the IATA also highlighted that the global fleet size increased by 5.0% YoY to 29,754 aircraft (2017: 3.3% YoY). As the growth of capacity in 2018 was slower than passenger traffic, the average load factor in 2018 inched upward to 81.9% (2017: 81.5%).

[4] Growth forecasts in terms of RPK.
[5] Growth forecasts in terms of FTK.

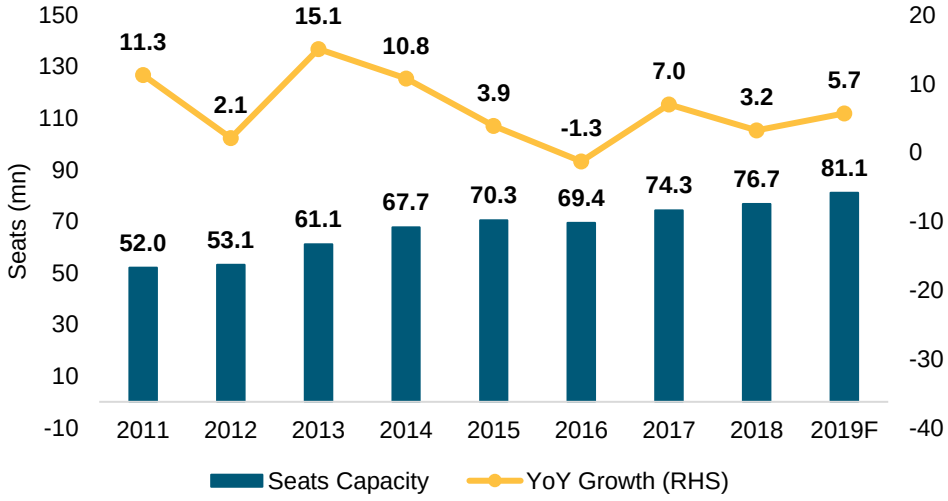
Malaysian carriers reported modest growth in capacity, both in terms of ASK and number of seats in 2018. 2018 ASK grew by 3.4% YoY (2017: 9.6% YoY), while the number of seats rose 3.2% YoY (2017: 7.0% YoY) (see Figures 6 and 7). For the third consecutive year, seats capacity for Malaysian carriers grew slower than passenger traffic, where the average load factor remained flat at 80.3% in 2018 (2017: 80.4%)

Figure 6: Capacity Growth in terms of ASK by Malaysian Carriers, 2011 – 2019F



Source: MAVCOM Estimates, AirportIS

Figure 7: Seat Capacity Growth by Malaysian Carriers, 2011 – 2019F



Source: MAVCOM Estimates, AirportIS

For 2019, Malaysian carriers are expected to increase capacity by 2.0% YoY—in terms of ASK—and 5.7% YoY in terms of number of seats. The divergence between the growth rates of capacity in terms of ASK and number of seats indicates that Malaysian carriers are adding capacity by operating higher frequencies to domestic and short-haul international destinations. For example, **93.8% of additional seats to be deployed in 2019 will be for domestic destinations**. In contrast, only 47.2% of new seats that were deployed in 2018 were for domestic destinations. For the international market, MAB and AirAsia are the only two Malaysian carriers that are planning to increase seats capacity in 2019. Both airlines will be making up 71.4% share of international seats capacity in 2019.

2018 Passenger Traffic Grew by 2.7% YoY

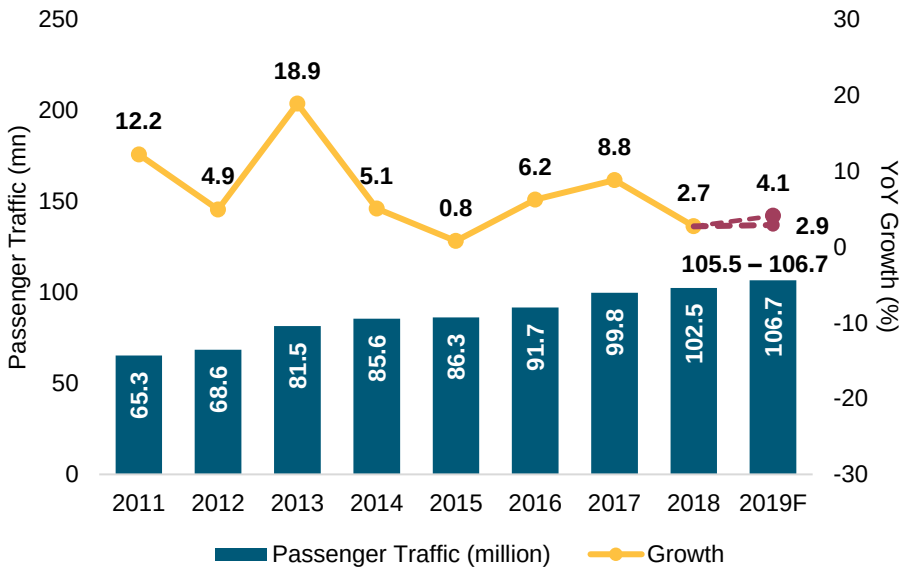
In 2018, passenger traffic for Malaysia grew by 2.7% YoY to 102.5mn, **surpassing 100mn for the first time**. The growth in 2018 was also the weakest passenger traffic growth reported since 2015, when passenger traffic grew 0.8% YoY. However, the 2018 passenger traffic growth was above MAVCOM's forecast of between 1.1% YoY and 2.0% YoY. Traffic in 2018 was mainly driven by international traffic that grew 5.5% YoY as domestic traffic growth was flat at 1.1% YoY. Several Malaysian carriers embarked on domestic capacity rationalisation exercises that contributed towards the weak growth of domestic passenger traffic.

Malaysia's Passenger Traffic is Expected to Grow by 2.9% – 4.1% YoY in 2019

World GDP growth is expected to be slower in 2019 due to strong economic headwinds. Correspondingly, the growth of passenger traffic both globally and within the Asia Pacific region are also forecasted to be slower in 2019. However, the Malaysian economy is expected to remain strong, to be supported by domestic consumption. In addition, Malaysian carriers will be taking advantage of the strong domestic consumption by focusing their expansion on domestic routes.

Therefore, **MAVCOM forecasts that 2019 passenger traffic will grow between 2.9% YoY and 4.1% YoY** (Previous: 2.2% – 3.3% YoY)—to be predominantly supported by domestic demand—translating into passenger traffic of 105.5mn – 106.7mn (Previous: 102.5mn – 103.5mn) (see Figure 8).

Figure 8: Passenger Traffic, 2011 – 2019F



Source: MAVCOM Estimates, AOL Holders

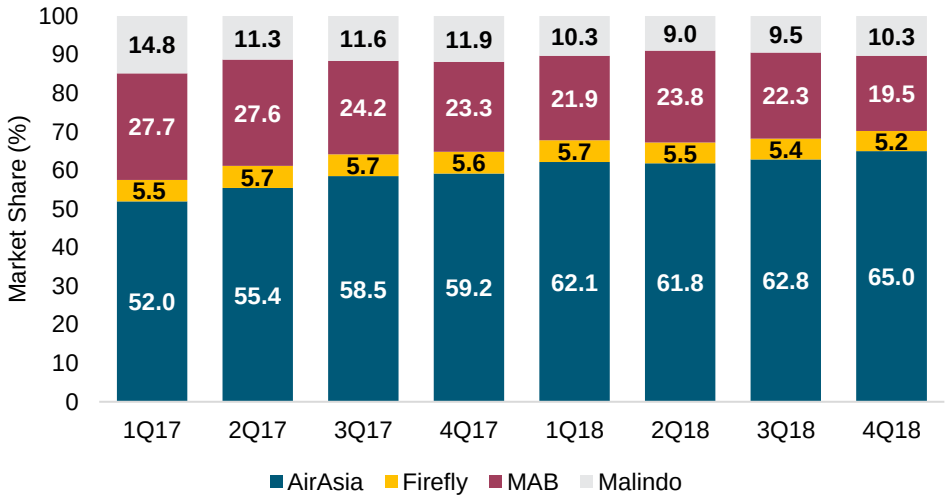
SECTION 3: INDUSTRY STRUCTURE

Scheduled Passenger Service Market

AirAsia Continued to Increase Its Market Share in the Scheduled Passenger Service Market

AirAsia remains as the most dominant player in the domestic market as it increased its market share in terms of number of passengers to 65.0% in 4Q18 (4Q17: 59.2%) (see Figure 9). The higher market share was gained at the expense of both MAB and Malindo. The two airlines saw their market shares in 4Q18 reduced to 19.5% and 10.3%, respectively (4Q17: 23.3% and 11.9%, respectively). In 4Q18, MAB and Malindo had cut their capacities—in terms of number of seats—by 7.0% YoY and 25.6% YoY, respectively, whereas AirAsia increased its seats capacity by 25.9% YoY. **The domestic capacity rationalisation exercises undertaken by MAB and Malindo contributed towards AirAsia's strengthening position in the domestic market.**

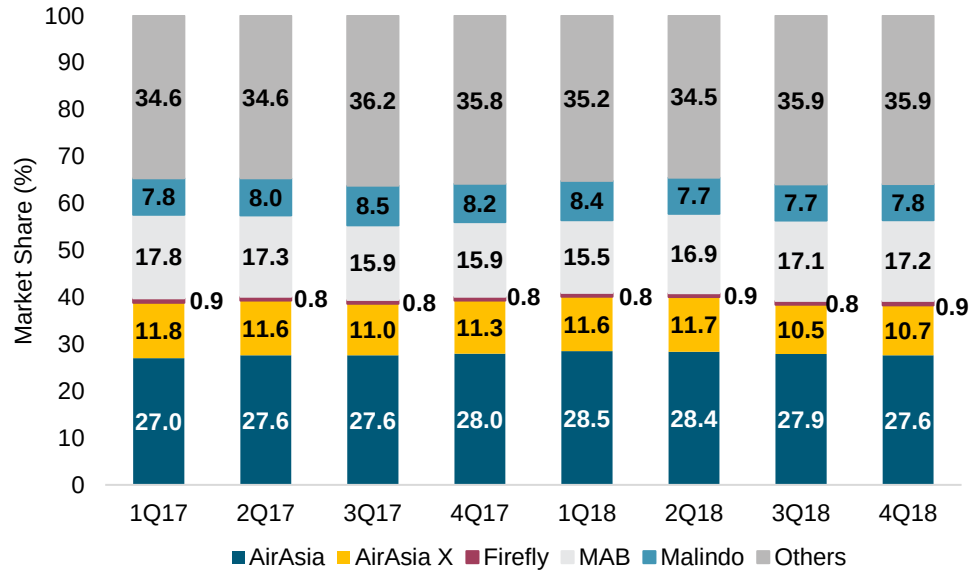
Figure 9: Percentage of Airlines' Market Share for Domestic Routes by Passengers, 2017 – 2018



Source: MAVCOM Analysis, AirportIS

Similarly, for the international market, AirAsia remains the largest airline with market share of 27.6% in 4Q18. This is slightly lower than its market share in 4Q17 of 28.0% (see Figure 10). **AirAsia's market share for the international market has been declining since 1Q18 as the airline loses its share to MAB**. MAB's market share improved from 15.9% in 4Q17 to 17.2% in 4Q18.

Figure 10: Percentage of Airlines' Market Share for International Routes by Passengers, 2017 – 2018



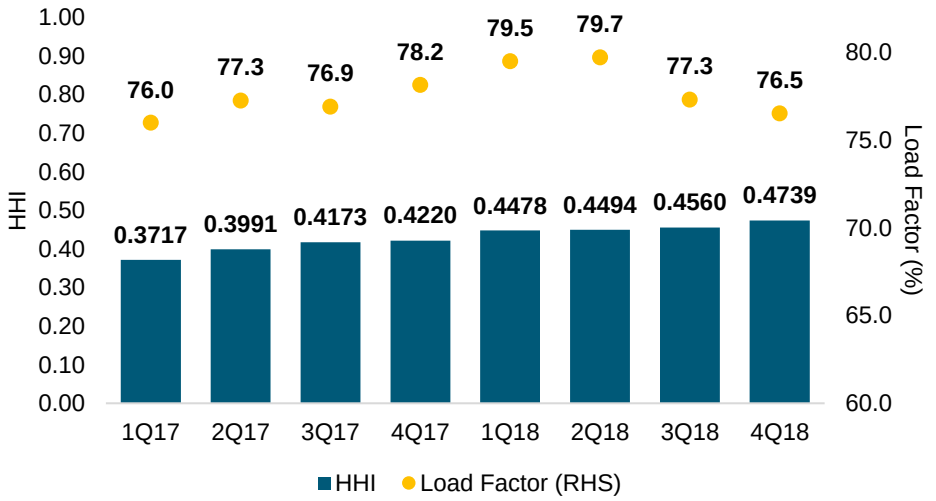
Source: MAVCOM Analysis, AirportIS

Domestic and International Routes Were More Concentrated in 4Q18

As AirAsia increased its market share in the domestic market, the market became more concentrated in 4Q18 as HHI increased to 0.4739 (4Q17: 0.4220) (see Figure 11). The average load factor however dropped to 76.5% in 4Q18 (4Q17: 78.2%) as AirAsia had added a significant number of seats in the domestic market in 4Q18 in response to MAB and Malindo who had cut their domestic capacity. For example, both MAB and Malindo had cut 483,900 seats in 4Q18, but AirAsia added 1,136,000 new seats, leading to a surplus of 652,000 seats in the market.

The five routes with the highest load factors in 2018 were: KCH-LGK[6] (88.0%), JHB-MYY (86.4%), JHB-TGG[7] (86.3%), KBR-KCH (86.0%), and BKI-KBR (86.0%). Whereas, the five routes with the lowest load factors were IPH-JHB (70.9%), KUA-KUL (68.9%), MKZ-PEN (67.3%), LGK-SZB (67.2%), and KTE-SZB (67.1%).

Figure 11: Domestic Market Concentration Levels and Load Factors, 2017 – 2018



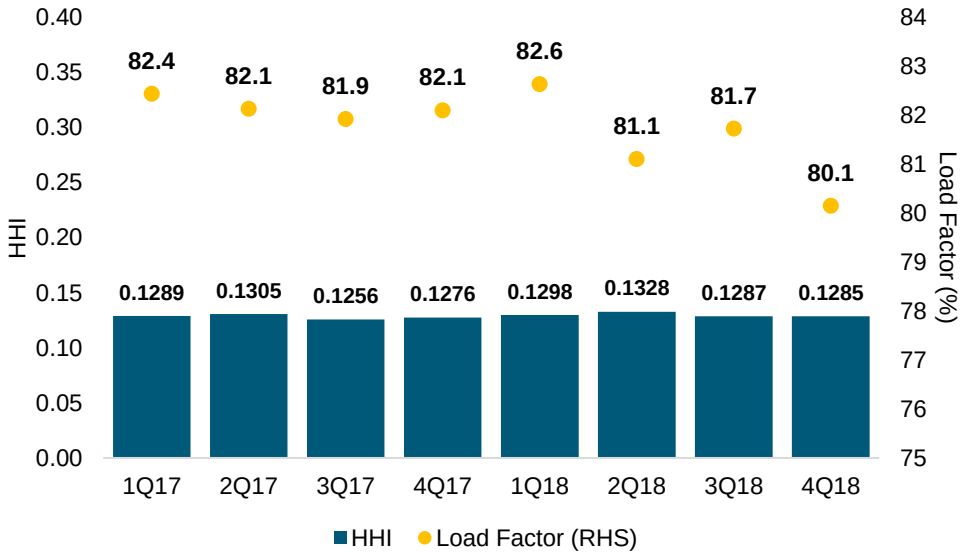
Source: MAVCOM Analysis, AirportIS

[6] Operations ended in 2Q18

[7] Operations ended in 4Q18

As for the international market, its concentration levels were considerably lower compared to the domestic market between 1Q17 and 4Q18. As at 31 December 2018, there were 64 foreign airlines serving the international market alongside Malaysian carriers. However, the average load factor trend of the international market mimics that of the domestic market, where there was a dip in 4Q18 (see Figure 12). The five highest load factors in 2018 were for routes: MYY-SIN (95.5%), IST-KUL (89.8%), KUL-MLE (87.9%), KUL-WUH (86.8%), and BBI-KUL (86.6%). Whereas, the five routes with the lowest load factors were BKI-KMG (58.5%), KMG-PEN (49.7%) FOC-KUL (47.4%), BKI-FOC (38.3%), and KUL-RUH (36.0%).

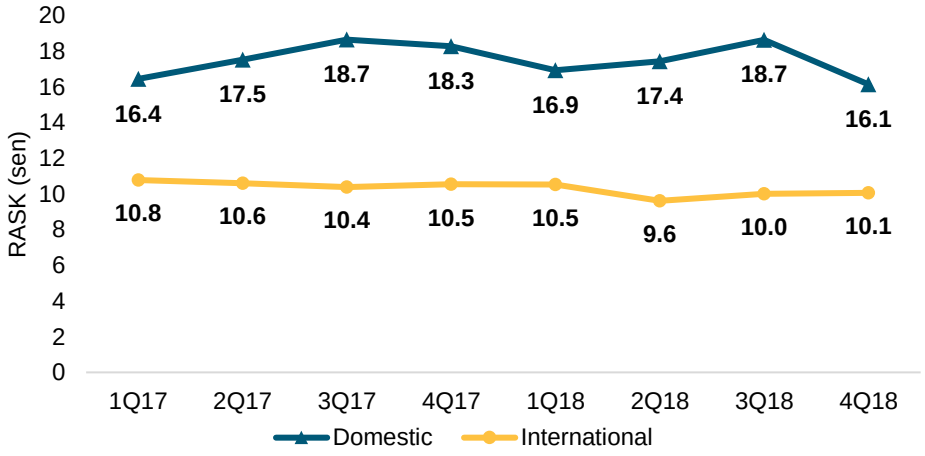
Figure 12: International Market Concentration Levels and Load Factors, 2017 – 2018



Source: MAVCOM Analysis, AirportIS

In 2018, the RASK gap between domestic routes and international routes increased to 71.6% (2017: 67.6%), where domestic routes have higher RASK compared to international routes. As the domestic market becomes less competitive (i.e. higher market concentration), Malaysian carriers are able to gain more per unit revenue from its domestic market passengers (see Figure 13).

Figure 13: RASK for Domestic and International Routes, 2017 – 2018



Source: MAVCOM Analysis, AirportIS

Non-Scheduled Services Segments

Losses Tend to be Reported by Smaller Companies

Collectively, the non-scheduled services segments (ASP holders) reported RM1.6bn revenue for 2018 (2017: RM1.7bn) with an average operating profit margin of 3.5% (2017: 23.1%) (see Table 7). With the exception of the on-demand charter segment, other non-scheduled services segments are highly concentrated markets with HHI above 0.6000. Within each segment, bigger companies—in terms of revenue—tend to report better levels of profitability, suggesting that economies of scale matter in this particular segment.

Table 7: Summary of Non-Scheduled Services' Market Structure, 2018

Type of Business	No. of Licence Holders	HHI	2018 Revenue (RM million)	2018 Operating Profit Margin (%)
Surveying, Observation & Patrol	1	1.0000	15.4	-38.0
On-demand Cargo	1	1.0000	84.8	-2.0
Pleasure Flying	2	0.8146	3.4	-89.6
Aerial Work – cloud seeding, mapping	2	0.8365	67.0	18.0
Oil & Gas	4	0.7873	669.0	5.5
On-demand Charter	11	0.2339	703.1	2.3
TOTAL	**21**		**1542.7**	**3.5**

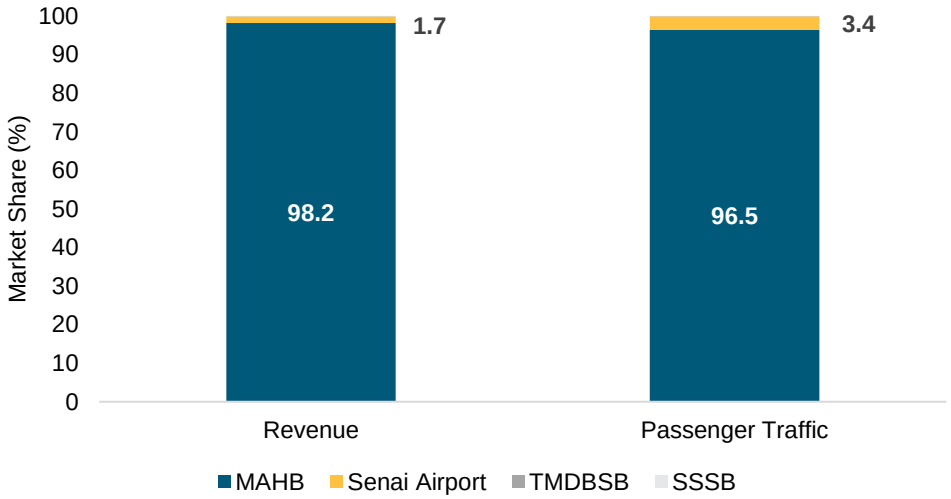
Source: MAVCOM

Aerodrome Operators' Segment

Aerodrome Operators' Market is Highly Concentrated

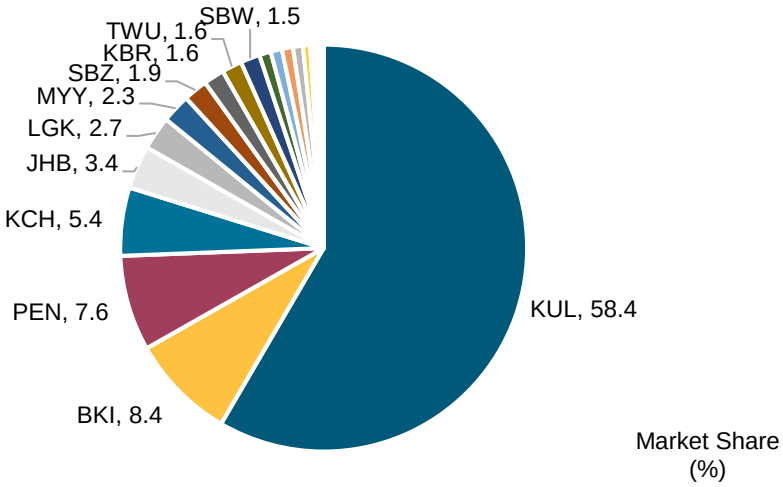
In 2018, the aerodrome operating segment reported total revenue of RM4.9bn (2017: RM4.9bn), where 98.2% of the total revenue was made up by MAHB (see Figure 14). As the biggest airport operator in the country, MAHB handled 96.5% of passenger traffic in Malaysia (2017: 96.8%), which makes this sub-segment as the most concentrated market within the aviation services market. The HHI for this market in 2018 was 0.9643 (2017: 0.9737). Similarly, passenger traffic at Malaysia's airports is highly concentrated in KUL as the airport handled 58.4% (2017: 58.4%) of the total passenger traffic for Malaysia (see Figure 15).

Figure 14: Market Shares of the Aerodrome Operators' Segment, 2018



Source: MAVCOM, AOL Holders

Figure 15: Market Shares of Airports in Malaysia in Terms of Passenger Traffic, 2018



Source: MAVCOM, AOL Holders

Capacity Constraints Remain an Issue at Airports in Malaysia

Based on the 2018 passenger traffic data, TWU and JHB joined the list of airports that handled passenger traffic above their terminal design capacity (see Table 8). At the same time, LGK had dropped from the group of nine airports that had been identified as airports that handled passenger traffic above their terminal design capacity in 2018, due to an expansion of LGK's terminal. It was also observed that several airports had seen its passenger traffic reduced in 2018 compared to the previous year, for example, LGK, SZB, LDU, KBR, TGG, LBU, and MKZ. This was mainly due to the domestic capacity rationalisation by several Malaysian carriers.

Table 8: Terminal Design Capacity and Terminal Capacity Utilisation Rate of Airports in Malaysia, 2018

No.	Airports	Terminal Design Capacity (mppa)	2017 Passengers Handled (mppa)	2017 Terminal Utilisation Rate (%)	2018 Passengers Handled (mppa)	2018 Terminal Utilisation Rate (%)
1	SZB	1.50	2.88	192.0	1.96	130.9
2	LDU	0.10	0.13	127.7	0.12	124.8
3	PEN	6.50	7.23	111.3	7.79	119.8
4	MYY	2.00	2.19	109.4	2.35	117.5
5	MZV	0.05	0.06	125.3	0.06	115.1
6	KUL-T1	25.00	28.29	113.2	28.29	113.2
7	KBR	1.50	1.99	132.6	1.69	112.5
8	KCH	5.00	5.10	101.9	5.56	111.3
9	TWU	1.50	1.37	91.7	1.64	109.4
10	JHB	3.50	3.07	87.7	3.52	100.7
11	BKI	9.00	8.01	89.0	8.62	95.8
12	BTU	1.00	0.85	85.0	0.92	92.3
13	SBW	1.80	1.50	83.2	1.58	87.7
14	KUL	70.00	58.55	83.7	59.99	85.7
15	KTE	0.10	0.09	90.0	0.08	83.9
16	KUL-T2	45.00	30.27	67.3	31.92	70.9
17	LGK	4.00	2.77	184.5	2.74	68.4
18	SDK	1.40	0.90	64.0	0.95	67.9
19	TGG	1.50	0.94	62.9	0.89	59.6
20	LMN	0.08	0.05	66.0	0.05	56.8
21	AOR	1.50	0.80	53.5	0.82	54.5
22	IPH	0.60	0.27	45.7	0.32	52.6
23	KUA	0.50	0.24	48.3	0.26	51.8
24	LBU	2.20	0.58	26.3	0.57	26.1
25	MKZ	0.50	0.06	12.4	0.05	10.5

Source: MAVCOM, AOL Holders

Some Airports May Require Immediate Capacity Relief

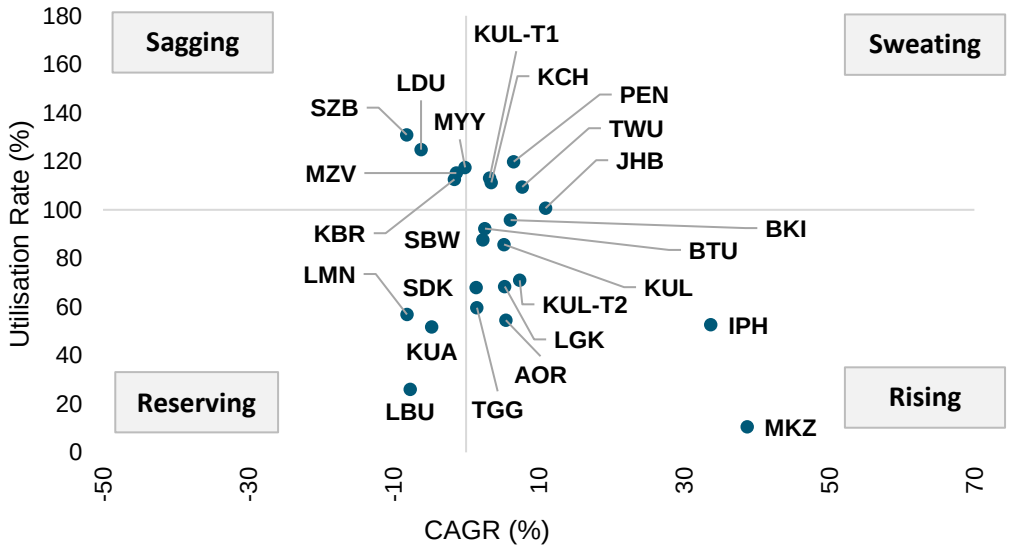
Although ten airports were operating beyond their theoretical design capacity in 2018, not all require immediate capacity relief**. Capacity relief may come in the form of either operational optimisation, terminal enlargement, or new terminal construction.** Airport operations can be optimised by way of de-peaking aircraft arrivals and departures to reduce congestion during peak periods. Similarly, **some airports that were operating beyond their theoretical design capacity require immediate attention than others**—this depends on the traffic growth of the airports that indicates the level of demand.

Based on the utilisation rates of airports and their four-year passenger traffic CAGR between 2014 and 2018, airports in Malaysia can be divided into four categories, as follows (see Figure 16):

- Sweating – utilisation rate of above 100% and positive CAGR
- Sagging – utilisation rate of above 100% and negative CAGR
- Rising – utilisation rate of below 100% and positive CAGR
- Reserving – utilisation rate of below 100% and negative CAGR

In terms of addressing terminal capacity, airports that require immediate attention are the sweating airports due to the growing demand, but capacity may be restrictive. The rising airports—although operated below terminal design capacity—may need some level of attention due to the growth momentum and may experience overcapacity in the future.

Figure 16: Utilisation Rate and Four-year Passenger Traffic CAGR of Airports in Malaysia, 2014 – 2018



Source: MAVCOM, AOL Holders

Based on this quadrant, the 'Sweating' category (i.e. JHB, KCH, KUL-T1, PEN, and TWU) require attention given that these airports experienced positive growth in terms of passenger traffic between 2014 and 2018, and have already exceeded their respective terminal design capacity.

Ground Handling Services Segment

Ground Handling is the Least Concentrated Aviation Services Segment

As at 31 December 2018, there are 31 GHL holders that operate within three ground handling services sub-segments. Based on the latest audited financial data **in 2018, the GHL holders reported RM1.7bn in revenue**[8] (2017: RM1.5bn) (see Table 9). In terms of profitability, the ground handling services segment reported an average operating profit margin[9] of 7.4% in 2018 (2017: 1.0%). **Ground handling is the least concentrated market compared to scheduled passenger services, non-scheduled services, and aerodrome operation markets**. However, the market concentration of the ground handling services segment differs according to sub-segments where the catering services is the most concentrated sub-segment with an HHI of 0.6757.

Table 9: Market Structure of GHL Market, 2018

Type of Business	No. of Licence Holders	HHI	2018 Revenue (RM mn)	2018 Operating Profit Margin (%)
Catering	3	0.6757	333.1	-2.7
General Ground Handling	20	0.4631	1308.3	10.2
Refuelling	8	0.5080	37.2	1.4
TOTAL	**31**		**1,678.6**	**7.4**

Source: MAVCOM

The general ground handling sub-segment conducts 10 types of services. A general ground handler may provide multiple services within the list shown in Table 10.

Table 10: Types of General Ground Handling Services

No.	Ground Handling Service
1	Ground administration and supervision
2	Passenger handling
3	Freight and mail handling (documentations handling)
4	Aircraft services
5	Aircraft maintenance
6	Flight operations and crew administration
7	Surface transport
8	Baggage handling
9	Freight and mail handling (physical handling)
10	Ramp handling

Source: MAVCOM

[8] The total revenue excludes revenue generated by the GHL holders that are also ASL, ASP, or AOL holders, and petroleum products retailers.

[9] The average operating profit margin excludes revenue generated by the GHL holders that are also ASL, ASP, or AOL holders, and petroleum products retailers.

Air Connectivity Index

Between 2017 and 2018, the air connectivity score increased across all ASEAN member states except for Brunei. Despite offering more seats to more destinations in 2018, Brunei's connectivity index score dropped by 0.1 points due to a drop in the total seats offered to airports with high weightages such as DXB and SIN. However, the ranking for the ASEAN member states remains unchanged from 2017 (see Table 11). Malaysia's connectivity score rose by 5.7 points in 2018 mainly due to an increase in the number of seats offered (see Table 12). Thailand remains first in the 2018 ranking as it is connected to more destinations and offered a higher number of seats.

Table 11: Air Connectivity Index and Ranking of ASEAN Member States, 2017 – 2018

Country	Connectivity Ranking		Connectivity Score	
	2017	2018	2017	2018
Thailand	1	1	153.0	166.5
Singapore	2	2	107.8	114.6
Indonesia	3	3	99.4	106.3
Malaysia	**4**	**4**	**88.8**	**94.5**
Philippines	5	5	77.6	85.6
Vietnam	6	6	74.4	82.7
Cambodia	7	7	21.4	22.9
Myanmar	8	8	14.7	15.2
Laos	9	9	5.5	6.2
Brunei	10	10	5.3	5.2

Source: MAVCOM Estimates, AirportIS

Table 12: Changes to Number of Seats and International Destinations for ASEAN Member States, 2017 – 2018

Country	Number of Destinations		% Change	Number of Seats (mn)		% Change
	2017	2018		2017	2018	
Thailand	180	205	13.9	4.49	4.87	8.5
Singapore	161	166	3.1	3.73	3.91	4.8
Indonesia	70	75	7.1	2.17	2.27	4.6
Malaysia	**124**	**128**	**3.2**	**3.01**	**3.09**	2.7
Philippines	66	67	1.5	1.56	1.68	7.7
Vietnam	77	98	27.3	1.72	1.87	8.7
Cambodia	53	66	24.5	0.61	0.7	14.8
Myanmar	26	25	-3.8	0.34	0.33	-2.9
Laos	22	21	-4.5	0.17	0.18	5.9
Brunei	18	22	22.2	0.11	0.11	0

Source: MAVCOM Estimates, AirportIS

It is worth noting that the changes in the air connectivity index score could be caused by changes in the number of international seats and destinations offered, as well as, the weightages of the airports that the country is connected to. For example, ICN's airport weightage increased from 69% in 2017 to 75% in 2018[10]; a country connected to ICN would see a marked improvement in the air connectivity index score compared to another country that is not. The increase in Malaysia's air connectivity score can be attributed to additional seats to ICN and SIN in 2018, each of which had an airport weightage of 75%. In addition, the introduction of scheduled flights to and from FRA, which has an airport weightage of 66%, also increased Malaysia's connectivity score.

[10] The airport weightage is the ratio of the total international passengers handled by the airport over the total passengers handled by the largest airport i.e. DXB in 2018.

ATRs Awarded by MAVCOM as of 31 December 2018

For 2018, ASL holders were awarded 205 additional ATRs (see Table 13), with AirAsia receiving the highest number of ATRs at 98, followed by Malindo at 52. During this period, there were 58 ATRs that were revoked as ASL holders failed to utilise the rights within six months from the date of issuance. ASL holders can also surrender the ATRs that they no longer require—no airlines had surrendered their ATRs in 2018.

Table 13: Breakdown of ATRs Awarded, 2017 – 2018

Airline	Total Domestic & International ATRs Awarded		Fail to Operate[11]		Surrendered[12]	
	2017	2018	2017	2018	2017	2018
AirAsia	77	98	9	6	-	-
AirAsia X	15	20	2	11	3	-
Firefly	2	4	-	-	-	-
MAB[13]	32	24	6	6	1	-
Malindo	81	52	33	35	1	-
MASwings	-	3	-	-	-	-
Raya Airways	2	4	2	-	-	-
TOTAL	**209**	**111**	**52**	**31**	**5**	**-**

Source: MAVCOM

The ASL holders sometimes surrender or fail to utilise their ATRs due to:

- their inability to secure the necessary approvals to operate the routes from other relevant authorities;
- the proposed route was later deemed as commercially unviable;
- the unavailability of aircraft due to changes in the aircraft delivery schedule; or
- the changes to the ASL holders' business strategy.

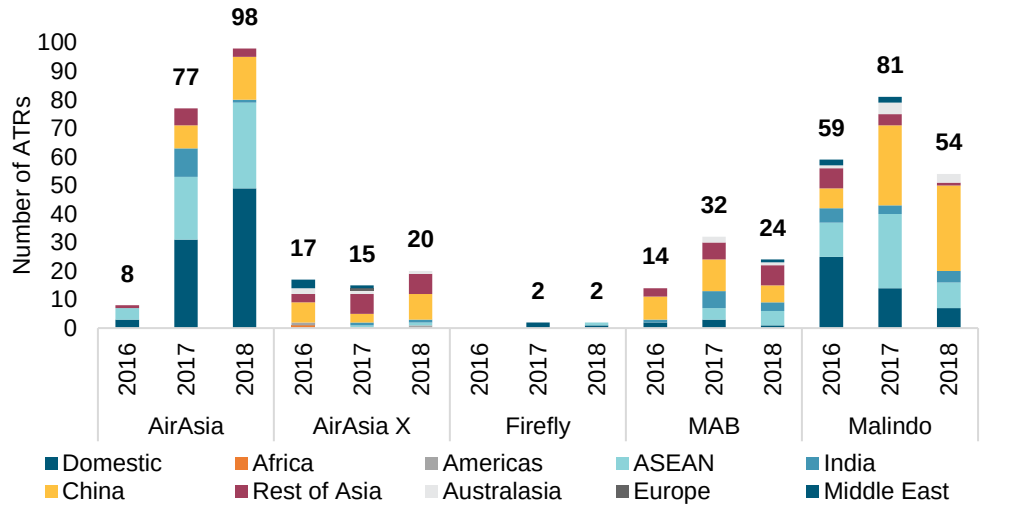
[11] ATRs revoked for failing to operate within six months from the ATRs' date of issuance.

[12] ATRs surrendered by the ASL holders.

[13] ATRs awarded include ATRs for the use of MABkargo

For 2018, 29.3% of the total ATRs were awarded for routes to China (2017: 23.9%), followed by 23.4% to destinations in ASEAN member states (2017: 25.4%) (see Figure 17). During this period, the percentage of ATRs awarded for routes to India went down significantly to 4.4% (2017: 10.5%). This was due to the limited ATRs available as Malaysian carriers had almost fully utilised (98.5%) the ATRs provided under the Malaysia-India ASA. ASEAN and Asia remained as the areas of focus for Malaysian carriers in their ATR applications with 65.9% of the ATRs awarded for routes to those regions (2017: 70.8%). The year saw a shift in focus for destinations from secondary cities in Malaysia. For example, there has been more ATRs awarded for non-KUL domestic routes, such as PEN-JHB, KCH-TWU, and JHB-SBW. In addition, international services such as from BKI to WNZ, TNA, and MFM were observed. Several new destinations for Malaysia awarded in 2018 were to AVV, PQC, HHQ, VCA, and DTB.

Figure 17: Breakdown of ATRs Awarded by Region, 2017 – 2018

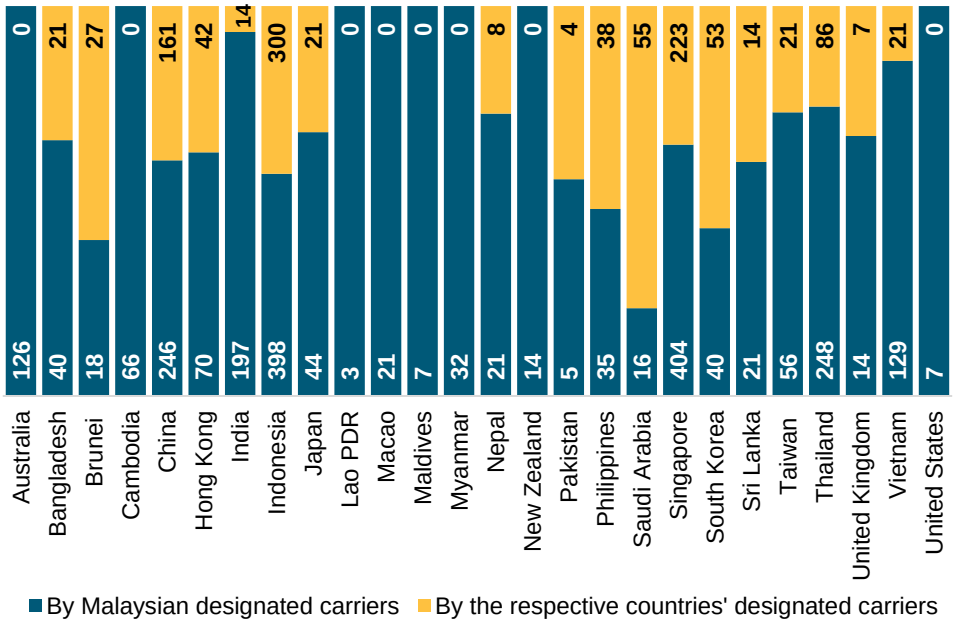


Source: MAVCOM

Malaysian Carriers Utilise 26 out of 106 ASAs

As at 31st December 2018, Malaysia has ASAs with 106 countries. However, **Malaysian-designated carriers utilise Third[14], Fourth[15], and Fifth[16] Freedom Rights in the respective ASAs for only 26 countries**. Among the 26 utilised ASAs, Malaysian-designated carriers operated seven or more (i.e. at least daily) flights per week to 24 of the 26 countries; Laos and Pakistan were the only countries where the Malaysian carriers did not operate at least daily flights to. In addition, there were also several foreign-designated carriers that did not reciprocate in terms of the utilisation of their home state's ASA with Malaysia – there were no designated carriers from Australia, Cambodia, Laos, Macao, Maldives, Myanmar, New Zealand, and United States that operated flights to Malaysia (see Figure 18).

Figure 18: Utilisation of ASAs, 2018



Source: MAVCOM

[14] Unrestricted ASAs do not have limits in terms of types of aircraft, number of seats, and number of frequencies that can be deployed by the designated carriers in the ASAs, whereas the restricted ASAs specify restrictions to capacity deployment. Utilisation of an ASA means operating at least one flight into a country that is a party to an ASA.

[15] Third Freedom Right is the right to carry traffic from the home state of the carrier into another state and the Fourth Freedom Right is the right to carry traffic from another state to the home state of the carrier.

[16] Fifth Freedom Right is the right granted by one state to put down and carry traffic from the home state of the carrier destined to a third state

Malaysian-designated carriers mainly utilised the Third and Fourth Freedom Rights available in these 26 ASAs. **There were also several Malaysian-designated carriers that utilised the Fifth Freedom Rights accorded in those ASAs** – AirAsia X operates seven flights weekly from AKL to KUL via OOL and the same frequency for flights from KUL to HNL via KIX. Malindo also utilises these Fifth Freedom Rights with seven flights weekly each from BNE and MEL to KUL via DPS.

There are also carriers operating to Malaysia from countries that Malaysian-designated carriers do not currently fly to (see Table 14).

Table 14: Foreign Carriers Operating into Malaysia From Countries Malaysian Carriers Do Not Fly To

Country	Airline
Ethiopia	Ethiopian Airways
Germany	Condor
Iran	Mahan Air
Iraq	Iraqi Airways
Jordan	Royal Jordanian
Kazakhstan	Air Astana
Mauritius	Air Mauritius
The Netherlands	KLM Airlines
Oman	Oman Air
Qatar	Qatar Airways
Turkey	Turkish Airlines
United Arab Emirates	Emirates, Etihad
Uzbekistan	Uzbekistan Airways

Source: AirportIS

A majority of these airlines utilise the Third and Fourth Freedom Rights accorded in the ASAs of their respective home states and Malaysia. In addition, **Air Mauritius, Ethiopian Airlines, Royal Jordanian, and Uzbekistan Airways utilise the Fifth Freedom Rights by flying to KUL via either BKK or SIN. KLM Airlines, on the other hand, flies to CGK via KUL**.

Historically, Fifth Freedom Rights meant that airlines could serve further destinations due to limitations in aircraft performance as long-distance flights were not always possible. This also enabled airlines to increase the utilisation of aircraft which may be awaiting the return journeys to their home destination, such as those services provided by Air Mauritius, Ethiopian Airlines, Royal Jordanian, and Uzbekistan Airways to Malaysia. In these cases, a relatively short onward destination such as KUL from either BKK or SIN enables the aircraft to be gainfully used in the time where it may be otherwise sitting idle before its flight back home.

There are also close to 70 countries such as Argentina, Canada, France, South Africa, and Russia of which the ASAs with Malaysia are not utilised in terms of Third, Fourth, or Fifth Freedom Rights by either Malaysian- or the respective foreign-designated carriers. The underlying reasons for the non-utilisation of these Rights under the respective ASAs by either Malaysian- or foreign-designated carriers could potentially be due to unattractive yields for the respective markets, or that these markets may not be attractive to offer suitable onward connections based on each airline's passenger profile.

SECTION 4: INDUSTRY PERFORMANCE

Scheduled Services

Uptick in Passenger Traffic Growth in 4Q18

In 2018, passenger traffic for Malaysia grew by 2.7% YoY to 102.5mn, surpassing 100mn for the first time. However, the growth in 2018 was also the weakest passenger traffic growth reported since 2015, where passenger traffic grew 0.8% YoY. The 2018 passenger traffic growth was above MAVCOM's forecast of between 1.1% YoY and 2.0% YoY. Traffic in 2018 was mainly driven by international traffic that grew 4.7% YoY as domestic traffic growth was flat at 0.5% YoY. Several Malaysian carriers embarked on domestic capacity rationalisation exercise that contributed towards the weak growth of domestic passenger traffic. **Malaysia's passenger traffic growth in 2018 was among the lowest compared to other ASEAN member states that reported growth of between 3.7% YoY and 25.0% YoY** (see Table 15).

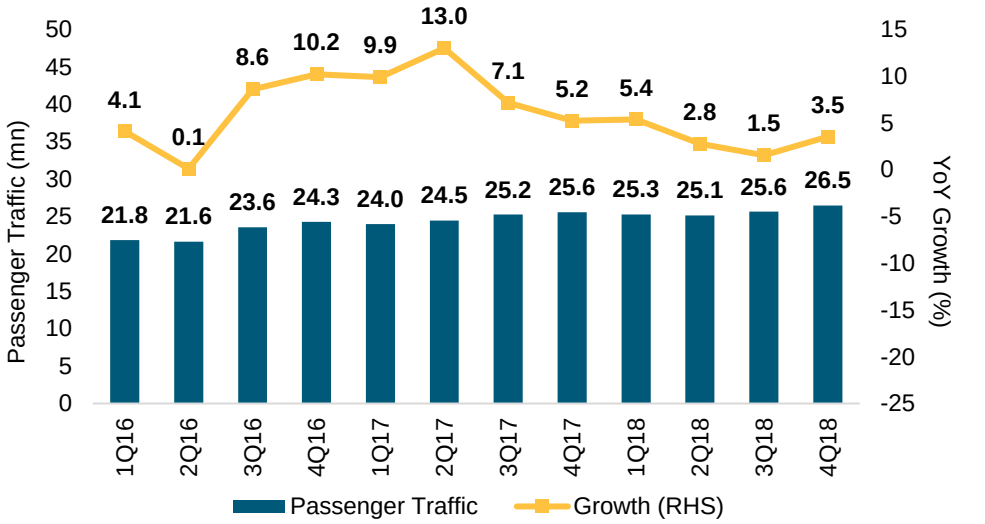
Table 15: Passenger Traffic for ASEAN Member States, 2018

Country	2017 Passenger Traffic (mn)	2018 Passenger Traffic (mn)	YoY Growth (%)
Indonesia	139.6	153.2	9.7
Thailand	129.2	139.5	8.0
Malaysia	**99.8**	**102.5**	**2.7**
Singapore	59.4	63.0	6.1
Vietnam	57.1	62.4	9.2
Philippines	52.2	56.4	8.1
Cambodia	8.4	10.5	25.0
Myanmar	8.7	8.1	7.2
Laos	2.7	3.2	18.4
Brunei	1.6	1.6	3.7

Source: AOL Holders, Changi Airport Group, Airport of Thailand, Cambodia Airports, AirportIS

There was an uptick in passenger traffic growth in 4Q18. **Passenger traffic grew by 3.5% YoY in 4Q18, recovering from the low growth of 1.5% YoY in 3Q18** (see Figure 19). Apart from the seasonally strong fourth quarter, it was observed that MAB did not cut capacity significantly in 4Q18 (unlike the previous three quarters). AirAsia was the only Malaysian carrier that consistently increased its seats capacity between 1Q18 and 4Q18.

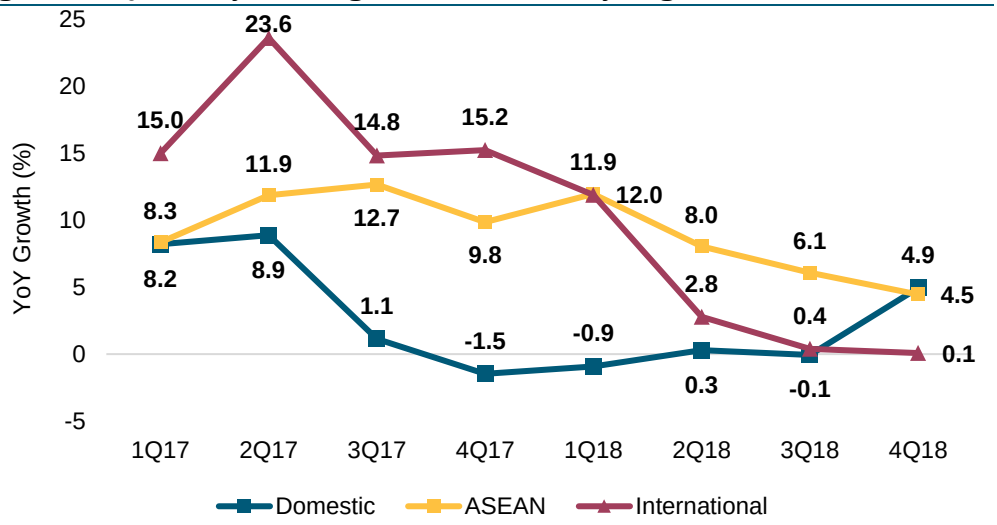
Figure 19: Quarterly Passenger Traffic Trend, 2016 – 2018



Source: MAVCOM Analysis, AOL Holders

2018 saw a downward growth trend in passenger traffic for international passengers and negative-to-flat growth trend for domestic passengers (see Figure 20). As highlighted earlier, domestic traffic was affected by the capacity rationalisation exercise undertaken by several Malaysian carriers. The growth rates of passenger traffic to and from ASEAN member states' destinations between 1Q18 and 4Q18 were better compared to traffic to other international destinations. The underlying reason for this was the fact that almost all Malaysian carriers continued to expand capacity to ASEAN destinations. This further signifies that **2018 was an Asia-centric year for Malaysian carriers and passenger traffic growth**.

Figure 20: Quarterly Passenger Traffic Trend by Regions, 2017 – 2018



Source: MAVCOM Analysis, AOL Holders

It was observed that **the overall slower growth of international traffic was contributed by the reduction in seats capacity by airlines**. For example, the 10 destination countries that reported the highest decline in number of passengers in 2018 were Australia, the UK, Iran, Bangladesh, Nepal, the Netherlands, Sri Lanka, Myanmar, Laos, and Mauritius (see Table 16). These countries' shares of total traffic were 10.0% in 2018 (2017: 12.6%). Malaysian carriers cut their seats capacity to all these countries except to the Netherlands.

Table 16: Top 10 Countries with Decline in the Number of Passengers Carried and Number of Seats To and From Malaysia, 2017 – 2018

Country	Decline in Number of Passengers in 2018	Decline in Number of Seats in 2018
Australia	316,445	331,033
United Kingdom	168,553	210,530
Iran	121,222	146,795
Bangladesh	88,780	133,011
Nepal	61,041	76,420
Netherlands	56,476	72,352
Sri Lanka	42,995	53,470
Myanmar	39,785	61,764
Laos	35,325	38,160
Mauritius	33,938	29,183

Source: MAVCOM Analysis, AirportIS

The reduction in the number of seats between 2017 and 2018 by Malaysian carriers **could potentially be due to the lower RASK on routes to these countries as compared to the non-Malaysian carriers on the same routes.** For example, the RASK on the routes to and from Bangladesh by Malaysian carriers were 50% lower than that of Bangladeshi carriers in 2018 (2017: 38%). The lower RASK on these routes could have resulted in the Malaysian carriers choosing to re-deploy their aircraft to other routes with higher RASK, which led to the decline in the number of passengers carried for these low-RASK routes.

For these countries, at the city-pair level, the decline in the number of passengers carried was largely driven by the KUL-LHR, KUL-PER, KUL-IKA, KUL-OOL, and KUL-SYD routes. Collectively, these five routes contributed 65% to the total decline in passengers carried between 2017 and 2018, of which 95% were due to the reduction of passengers carried by the Malaysian carriers.

Several reasons could explain the decline in the number of passengers carried between Malaysia and those cities. For example, in the case of KUL-LHR, a switch to a smaller aircraft—from Airbus A380-800 to the Airbus A350-900 model—led to the decline in the number of seats between 2017 and 2018 by 32.0% YoY and subsequently, number of passengers. As for the KUL-PER, KUL-OOL, and KUL-SYD routes, a reduction in weekly frequency from an average of 11 flights per week in 2017 to nine flights per week in 2018 (17.0% YoY reduction in number of seats capacity). As for the KUL-IKA route, the re-imposition of sanctions on Iran by the US may have increased the business risks for airlines operating to Iran.

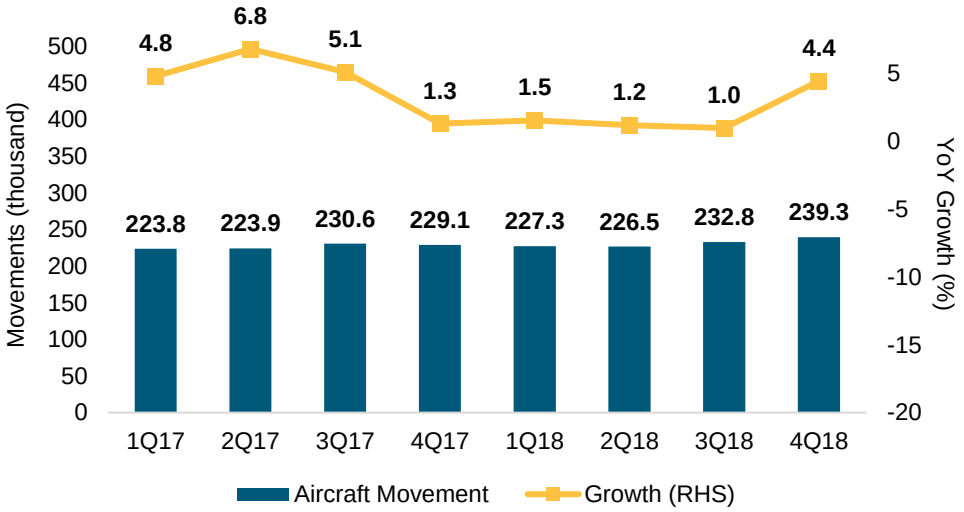
Periodically, developments around the world may increase the risk levels for Malaysian carriers operating into certain markets. For instance, ongoing tensions between Malaysia and Myanmar over the Rohingya community may have discouraged tourists from visiting either country. The temporary moratorium imposed by the Nepalese government on Nepalese intending to work in Malaysia may have reduced the number of migrants into Malaysia. Factors such as these may also affect the number of passengers travelling between the cities, in addition to the operational factors.

Conversely, the **top routes which experienced increased in passengers carried between 2017 and 2018 were KUL-BNE, KUL-AVV, and KUL-ADL**—these were all by Malaysian carriers. Out of these three routes, two (KUL-BNE and KUL-AVV) are newly introduced by Malaysian carriers. For KUL-ADL, there was an increase in the number of seats capacity by 110% YoY, also operated by a Malaysian carrier.

Slow Growth in Aircraft Movement and Cargo Traffic for 2018

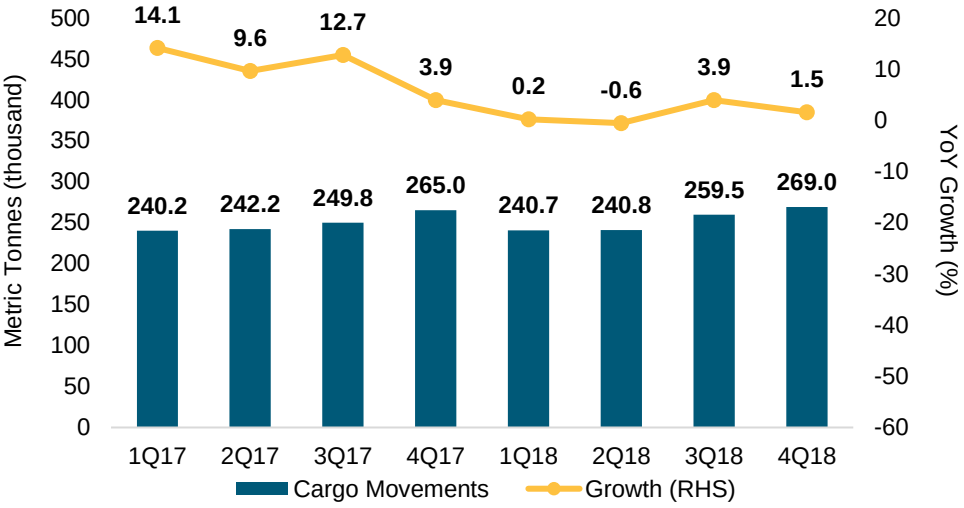
Both aircraft and cargo movements grew by 4.4% YoY and 1.5% YoY in 4Q18, respectively (see Figures 21 and 22). Similar to passenger traffic, there was an uptick in 4Q18 for aircraft movements as several Malaysian carriers started to ease their capacity reduction exercise during the quarter. As for cargo traffic, weak growth of the freight and mail segment contributed towards the single digit cargo growth in 4Q18.

Figure 21: Malaysia's Aircraft Movements, 2017 – 2018



Source: MAVCOM Analysis, AOL Holders

Figure 22: Malaysia's Cargo Movements, 2017 – 2018

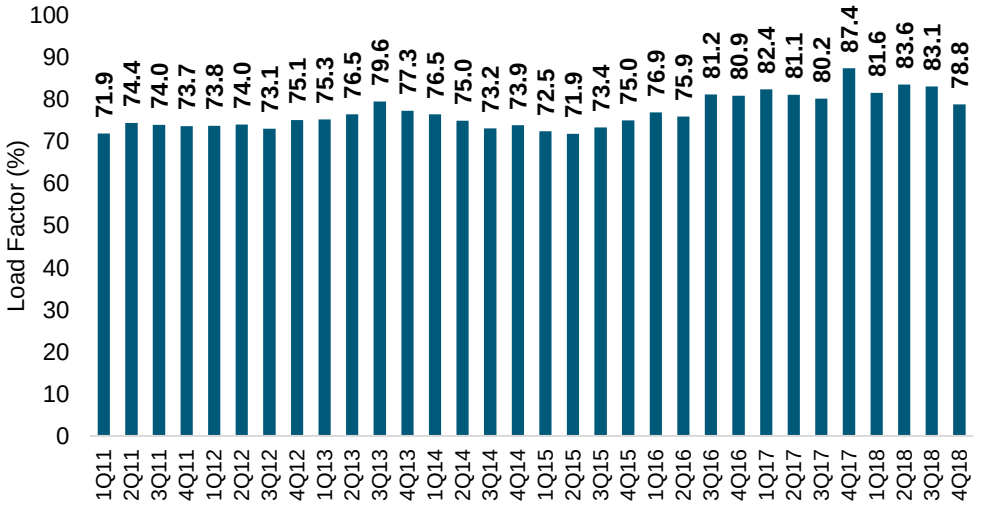


Source: MAVCOM Analysis, AOL Holders

Malaysian Carriers' Load Factors Slipped Under 80% in 4Q18

Malaysian carriers reported a load factor of 78.8% in 4Q18—the first time where load factors fell below 80% since 2Q16 (see Figure 23). During this period, seats capacity expanded at a faster rate of 7.9% YoY relative to passenger traffic growth of 4.0% YoY. This contributed to the lower average load factor achieved by Malaysian carriers in 4Q18.

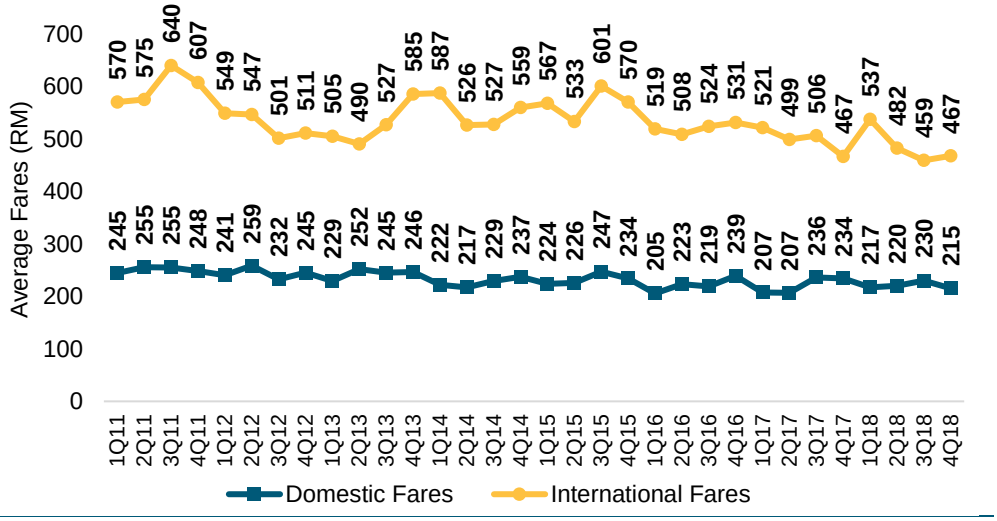
Figure 23: Malaysian Carriers' Load Factors Trend, 2011 – 2018



Source: MAVCOM Analysis, AirportIS

Malaysian carriers were able to maintain average fares in 4Q18 despite the weak demand for air travel during the quarter (see Figure 24). The international fares went slightly up from RM459 in 3Q18 to RM467 in 4Q18, while the domestic fares were recorded at RM215 in 4Q18, slightly lower than 3Q18 of RM230. For international routes, average fare of RM486 in 2018 was slightly lower than what was achieved in 2017 of RM498. Domestic average fare remains at RM221 in 2017 and 2018.

Figure 24: Malaysian Carriers' Average Fares Trend, 2011 – 2018

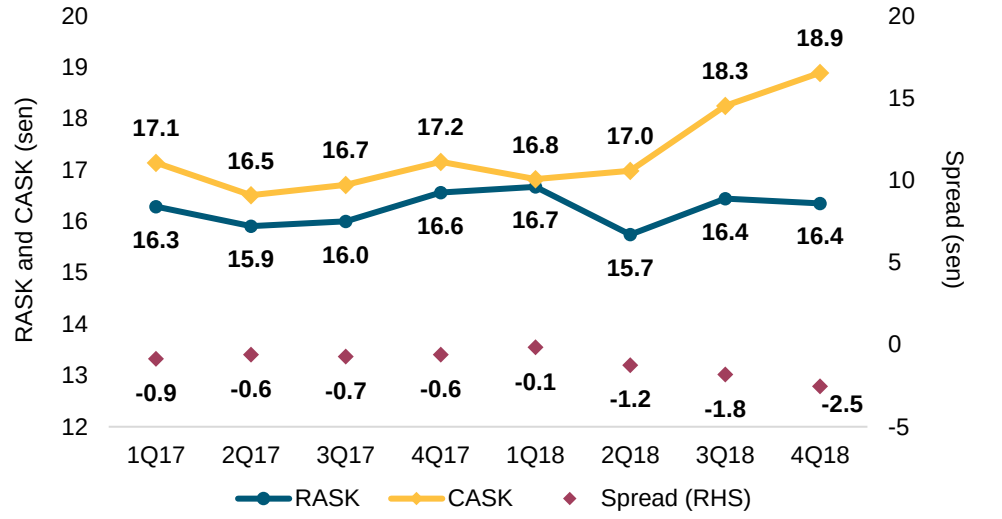


Source: MAVCOM Analysis, AirportIS

The Spread between CASK and RASK Continued to Widen

Rising jet fuel prices and depreciating RM against the USD had resulted in wider gap between CASK and RASK. CASK had been on an uptrend from 1Q18 at 16.8 sen and stood at 18.9 sen in 4Q18. At the same time, RASK remained flat throughout 2018 and this resulted in the widest negative spread of 2.5 sen in 4Q18 (see Figure 25).

Figure 25: Malaysian Carriers' RASK and CASK Trends, 2017 – 2018

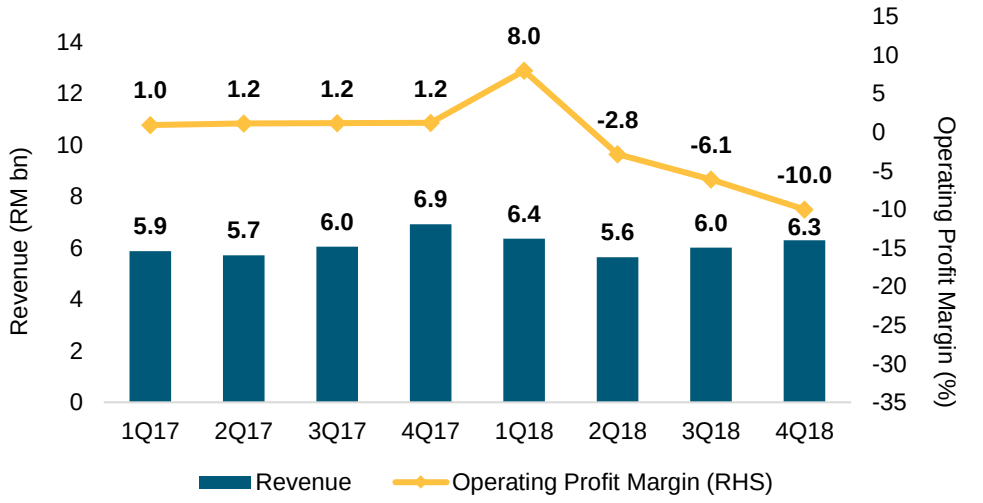


Source: MAVCOM Analysis, ASL Holders

Three Consecutive Quarters of Operating Losses

Flat average fares and wider negative spread between CASK and RASK showed up in Malaysian carriers' performance in terms of flat revenue, as well as, operating losses for the past three quarters. Malaysian carriers reported RM6.3bn revenue in 4Q18 (4Q17: RM6.9bn) and operating loss margin of -10% in 4Q18 (4Q17: 1.2%) (see Figure 26).

Figure 26: Revenue and Operating Profit Margin of Malaysian Carriers, 2017 – 2018



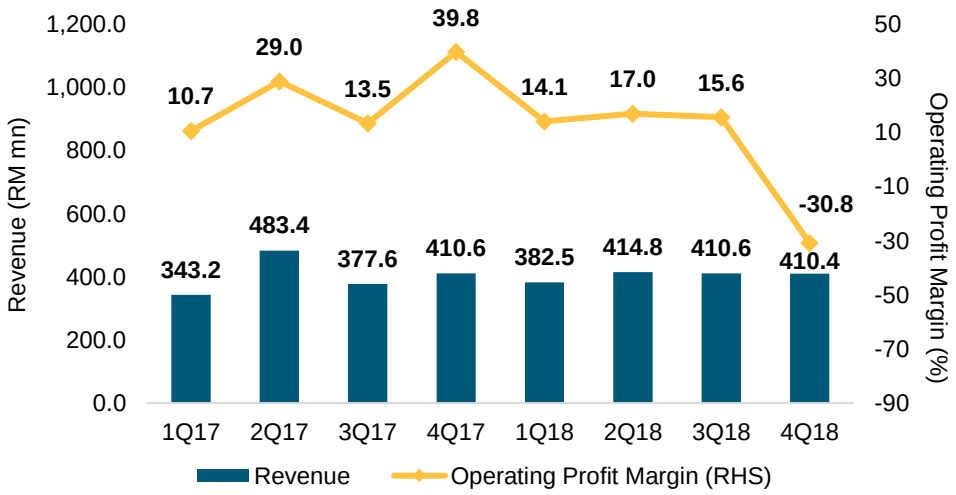
Source: MAVCOM Analysis, ASL Holders

Non-Scheduled Services

Significantly Lower Operating Profit Margin in 2018

Revenue for the non-scheduled services segment decreased by 8.4% YoY in 2018 to RM1.6bn (2017: RM1.7bn), where operating profit margin also dropped from 23.1% in 2017 to 3.5% in 2018. **Pleasure flying, on-demand cargo, and oil and gas sub-segments reported lower revenue in 2018**. Meanwhile, aerial work was the only sub-segment of the non-scheduled services that showed improvement in operating profit margin to 18.0% in 2018 (2017: 6.4%). Similarly, in 4Q18, the oil and gas, pleasure flying, and surveying, observation and patrol sub-segments reported huge losses and dragged down the segment's operating profit margin to -30.8% (4Q17: 39.8%) (see Figure 27).

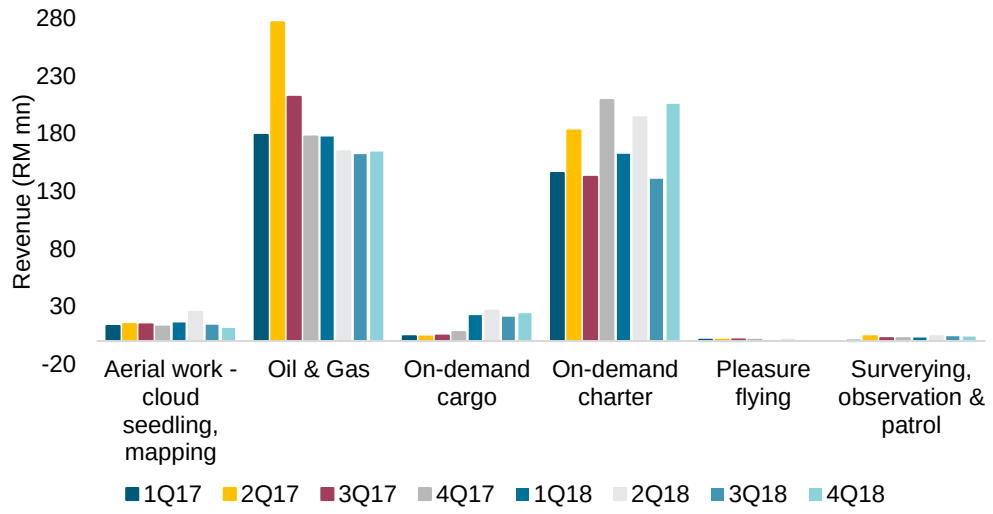
Figure 27: Revenue and Operating Profit Margin of ASP Holders, 2017 – 2018



Source: MAVCOM Analysis, ASP Holders

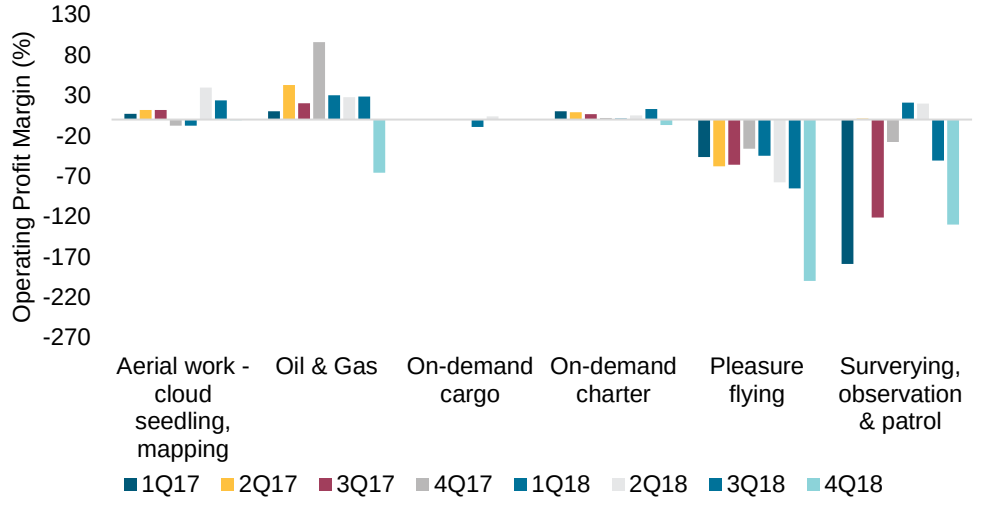
Financial performance of each sub-segment of the non-scheduled services segment between 1Q17 and 4Q18 are illustrated in Figures 28 and 29. In terms of revenue, the oil and gas and on-demand charter sub-segments consistently reported revenue in excess of RM100mn, while other sub-segments' revenue were well below RM30mn per quarter. In addition, only the oil and gas and on-demand charter segments consistently reported operating profits between 1Q17 and 4Q18. **Other sub-segments such as pleasure flying and surveying, observation, and patrol were rarely profitable over the past two years**. This could be due to a mismatch in demand and supply where either there is insufficient demand (unwillingness to pay for such services) or high cost structures (lack of economies of scale).

Figure 28: Revenue of ASP Holders by Sub-Segment, 2017 – 2018



Source: MAVCOM Analysis, ASP Holders

Figure 29: Operating Profit Margin of ASP Holders by Sub-Segment, 2017 – 2018



Source: MAVCOM Analysis, ASP Holders

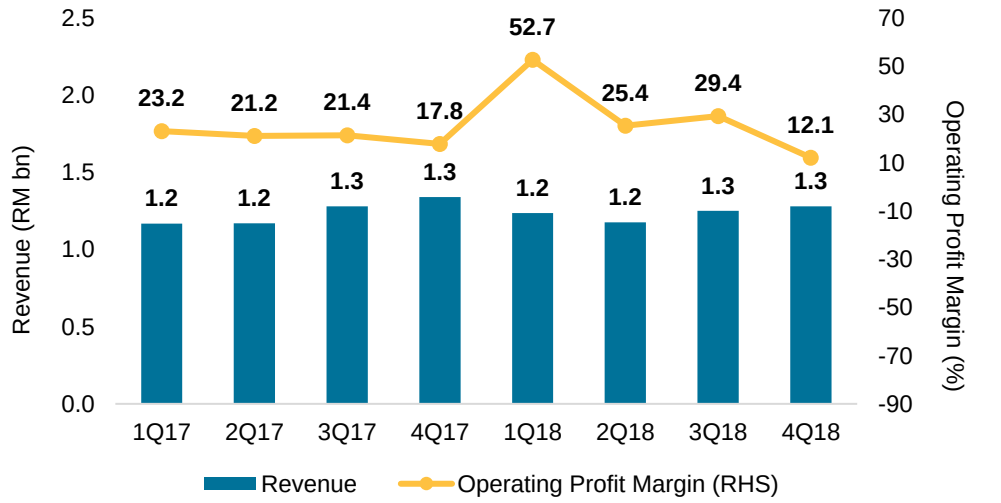
Aerodrome Operations

4.7% Revenue Growth for Aerodrome Operators in 2018

For 2018, aerodrome operators' revenue increased by 4.7% YoY to RM4.9bn (2017: RM4.7bn), in line with the growth exhibited by passenger traffic, aircraft movements, and cargo movements. The aggregate financial perfomance of Malaysian aerodrome operators is heavily skewed by MAHB's numbers as the company makes up 98.8% of the total revenue and operating profit of all aerodrome oprators in the country.

4Q18 revenue of RM1.3bn was 3.2% YoY higher than 4Q17 revenue of RM1.2bn (see Figure 30). The reported growth was in line with the passenger traffic and aircraft movements growth during the same period. Operating profit margin in 4Q18 was the lowest over the past eight quarters as MAHB had included a provision for doubtful debts during the quarter. As a result, the average operating profit margin in 4Q18 was 12.1% (4Q17: 17.8%). There was a spike in operating profit margin in 1Q18 of 52.7% as MAHB had booked RM286.6 million of unrealised gains on the fair value of its investments in GMR Hyderabad International Airport and GMR Male International Airport. Excluding this figure, the average operating profit margin for the aerodrome operators in 1Q18 would be 29.5%.

Figure 30: Revenue and Operating Profit Margin of AOL Holders, 2017 – 2018



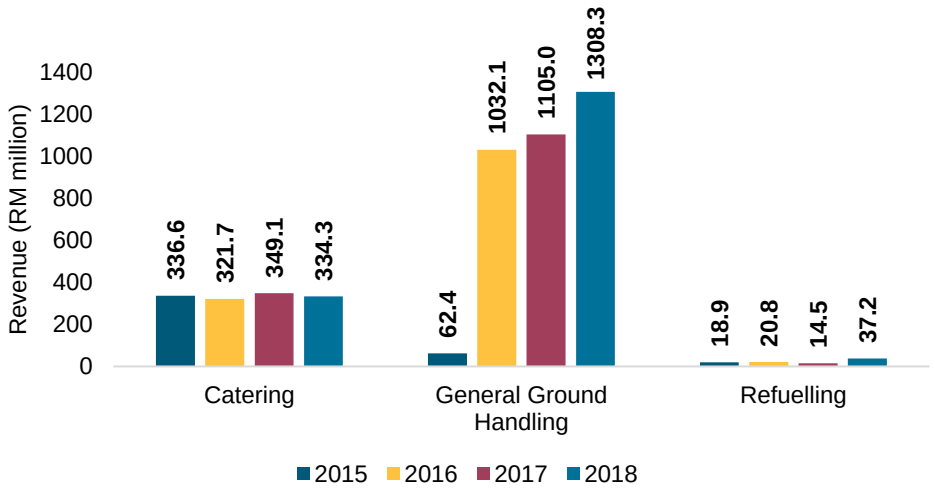
Source: MAVCOM Analysis, AOL Holders

Ground Handling Services

Revenue for the General Ground Handling and Refuelling Sub-Segments Grew Significantly in 2018

The general ground handling and refuelling sub-segments' revenue grew significantly by 18.4% YoY and 155.7% YoY in 2018, respectively (see Figure 31). For the general ground handling sub-segment, one general ground handler had a restructuring exercise in 2017, therefore, there was no revenue reported in 2017. Excluding this, revenue for general ground increased by 10.6% YoY as another general ground handler reported improvement in revenue due to higher number of aircraft and cargo handled by the company. Some of the general ground handling companies reported more contracts received, in particular, from the GOM in 2018. The higher revenue reported by the refuellers was attributable to higher volume of jet fuel sold in 2018.

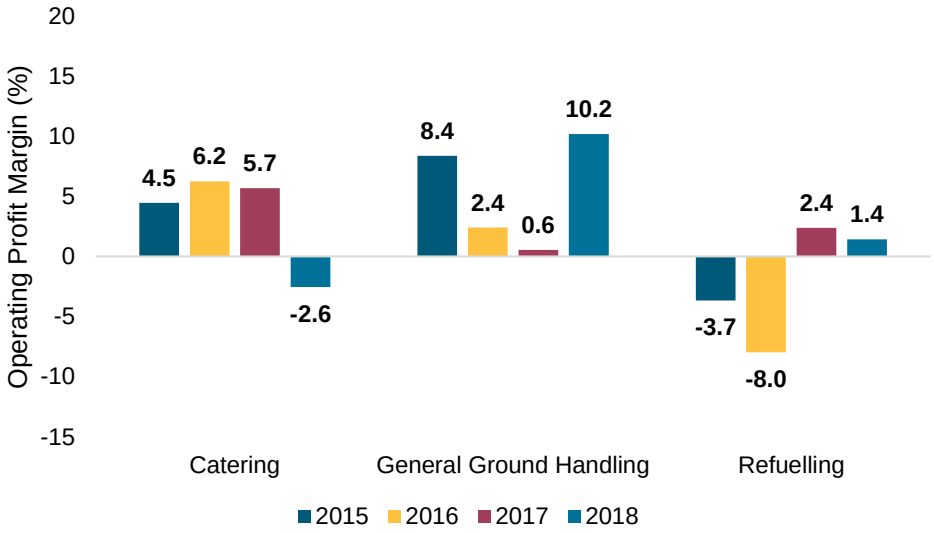
Figure 31: Revenue for Ground Handling Sub-Segment by Business, 2015 – 2018



Source: MAVCOM, GHL Holders

Despite the higher revenue reported by the refuellers, average operating profit margin in 2018 dropped to 1.4% (2017: 2.4%) (see Figure 32). The profitability of this sub-segment was dragged down by a GHL holder that began operating at two additional airports in 2018. The company reported losses from the new bases as operations have not reached maturity. In addition, a general ground handler's profitability was affected by high maintenance costs caused by major equipment failures.

Figure 32: Operating Profit Margin for Ground Handling Sub-Segments, 2015 – 2018



Source: MAVCOM, GHL Holders

SECTION 5: JET FUEL IN AVIATION AND HEDGING

Jet Fuel in Aviation

Fuel Cost Management is Important in the Aviation Industry

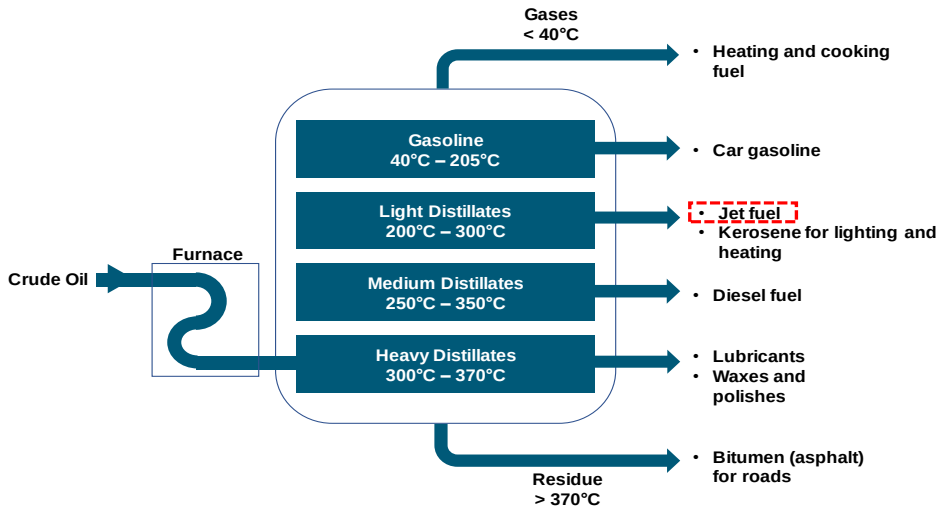
The aviation industry is an energy intensive industry in terms of fuel usage, which forms a significant portion of an airline's operating costs. **Although a study by the ATAG in 2010 pointed to an over 80% efficiency improvement in modern jet engines today relative to the 1950s, high fuel costs remain a key risk for airlines today**. Compounded by other risk factors such as temporary disease outbreaks and political instability, airlines may often face low and uncertain profit margins. These margins could be further reduced when fuel prices rise, especially if it happens over a short period of time.

In this situation, airlines may choose to pass on the effect of this price increase to the consumers via an increase in airfare, though this may be to the detriment of its passenger growth. In addressing this challenge, **airlines diligently manage fuel expenditure through a myriad of ways such as hedging its jet fuel requirements to stabilise its fuel costs and profit margins**.

Jet Fuel is a Kerosene-Grade Fuel Derived through Distillation Process

Jet fuel is used to power turbine engines in aircraft due to its high combustion characteristics which can create sufficient energy to provide thrust, lift, and propel an aircraft. **Jet fuel is a kerosene-grade fuel and is derived through distillation process, which separates crude oil into different streams** (e.g. light, medium, and heavy distillates) as defined by their respective boiling points (see Figure 33). The resulting chemical is then processed further to remove any unwanted components such as mercury, before the desired output is produced.

Figure 33: Fractional Distillation Column



Source: MAVCOM Analysis

Jet Fuel A-1 is Commonly Used Outside of the US

There are generally two blends for jet fuel–Jet A and Jet B—which are differentiated primarily by the mix of the blend and its freezing point. The Jet A blend has two grades, namely, Jet A and Jet A-1. **Jet A grade is mainly used in the US** and has a freezing point of -40 degrees Celsius. **Jet A-1 grade is mostly used outside of the US** and has a freezing point of -47 degrees Celsius. On the other hand, Jet B blend is a mix of gasoline and kerosene, in contrast to Jet A blend, which is nearly pure kerosene. With a freezing point of -60 degrees Celsius, **Jet B blend is mainly suited for aircrafts operating in very cold, polar-like climates**.

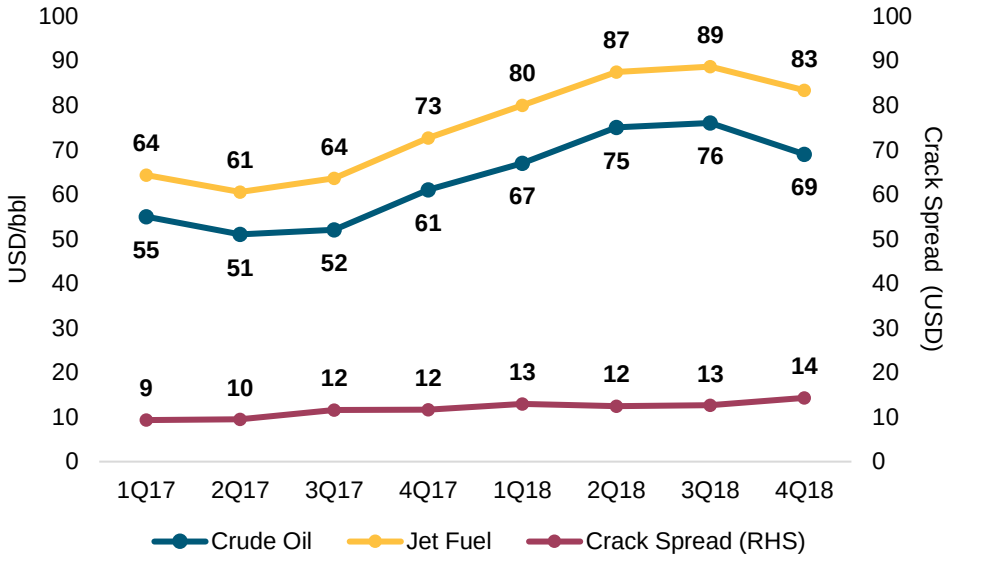
Jet fuel flows freely at room temperature, which facilitates its transport via vessel, pipeline, or fuel tanker. In Malaysia, jet fuel is transported to KUL via a network of pipelines from nearby refineries. The fuel is then stored at storage terminals/fuel farms at the airport, providing a few days buffer of fuel supply should any disruption occur. Jet fuel is transported to other airports in Malaysia either via coastal vessels, pipelines, and fuel tankers, or a combination of these. The refuelling activities at the airports are handled by GHL holders that operate refuelling services such as PetDagang and Shell Malaysia.

Jet Fuel Hedging

Jet Fuel Price Trend Generally Mirrors that of Crude Oil

Commodities price risk (e.g. jet fuel) is among the risks that airlines face in their business environment. **As jet fuel prices are closely linked to that of crude oil prices, fluctuations in commodity prices such as the price of crude oil can have an adverse impact on an airline's profitability**. In general, jet fuel prices are driven by several factors such as inventory levels, current and future refining capacity, as well as, global political and economic conditions. Figure 34 illustrates the fluctuation of prices between crude oil, jet fuel, and "crack spread" (the price difference of a barrel of crude oil and jet fuel—refining margin) from 2017 to 2018.

Figure 34: Oil, Jet Fuel, and Crack Spread Trends, 2017 – 2018

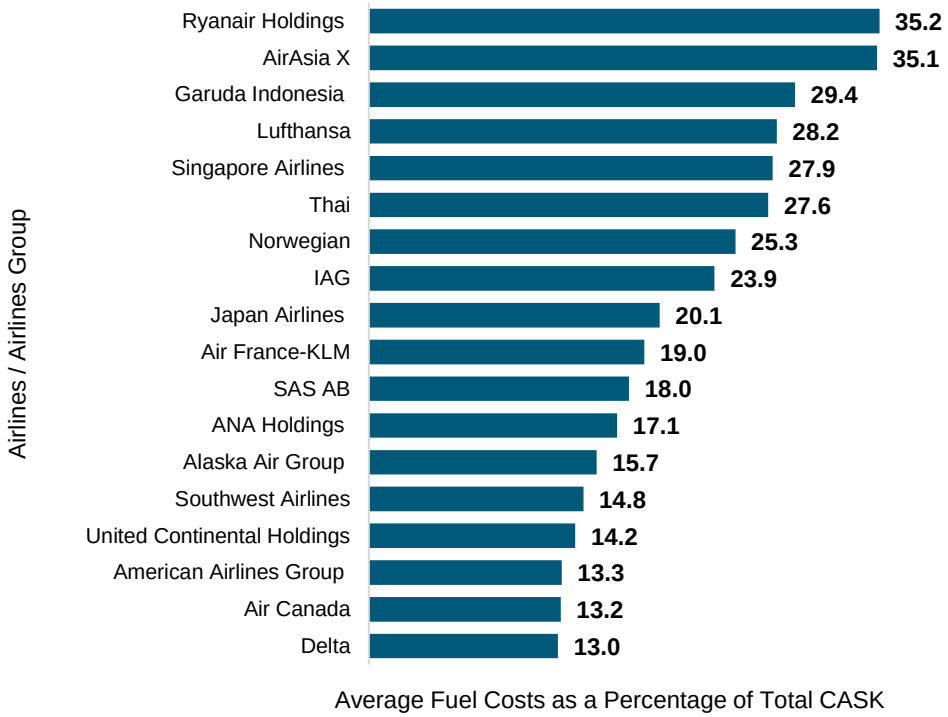


Source: Thomson Reuters

High Proportion of Fuel Costs Over Total Cost Incentivizes Airlines to Hedge Jet Fuel

Given the uncertainty in commodity prices, **hedging is a primary risk management tool for airlines to protect against a sudden price rise of a commodity**. Airlines have a strong incentive to hedge their jet fuel requirements given that jet fuel is a major component of the operating cost of an airline. In the aviation industry, **airlines usually hedge jet fuel as this may constitute up to a third of its total cost** depending on each airline's cost structure. Figure 35 illustrates fuel costs as a portion of total airline costs for selected global airlines.

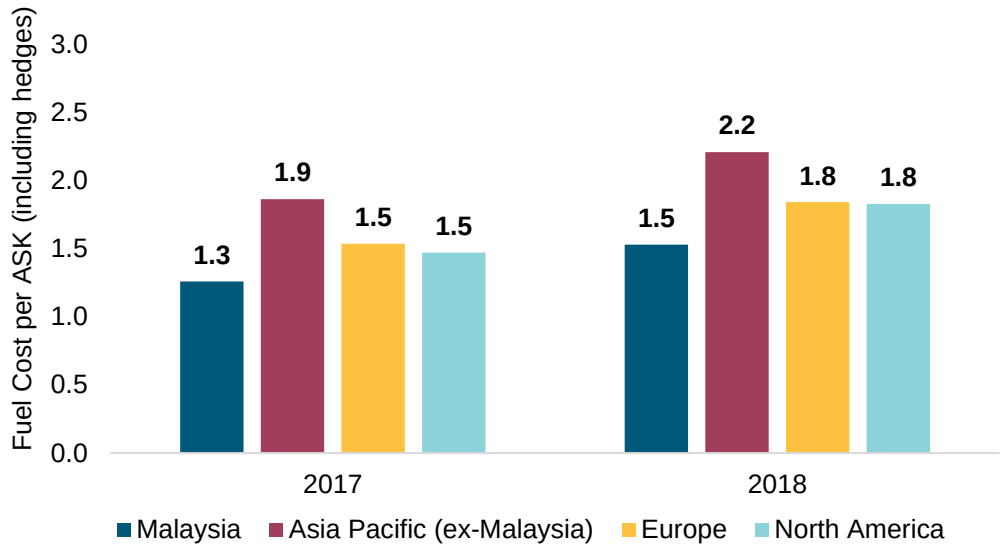
Figure 35: Average Fuel Costs as a Percentage of Total CASK, 2017 – 2018



Source: MAVCOM Analysis, Bloomberg

For Malaysian carriers, the fuel cost per ASK for 2017 and 2018 was US cents 1.3 and US cents 1.5, respectively (see Figure 36). Compared to selected airlines from Asia Pacific, Europe, and North America, Malaysian carriers have the lowest fuel cost per ASK in both years.

Figure 36: Average Fuel Cost per ASK for Malaysian and Selected Foreign Carriers, 2017 – 2018



Source: MAVCOM Analysis, Bloomberg

Airlines hedge jet fuel to 'lock-in' their desired fuel costs for a certain period of time (hedging horizon). This allows airlines **to stabilise their profit margins over the hedging horizon**, as well as, allowing top management sufficient time to assess the long-term movements of crude oil/jet fuel prices on future revenue and business strategies. In the short-term, hedging strategies can mitigate the impact of jet fuel price increases on airlines' profitability, however, **in the medium- to long-term, such strategies may not be able to eliminate the impact of higher jet fuel prices altogether**.

Airlines Use Various Financial Instruments to Hedge

To hedge, airlines purchase financial instruments (also known as financial derivatives, as these instruments derive their value from the price of underlying assets) from counterparties such as banks. Transactions involving the purchase of financial derivatives are mostly settled on a cash basis, involving no delivery or exchange of the physical commodity itself—unlike physical hedging—between the hedgers and its counterparties. This type of hedging is also known as financial hedging.

Common financial instruments used for commodities hedging are forward contracts, futures contracts, options, and swaps, as well as, a combination of these instruments (see Table 17).

Table 17: Financial Instruments for Commodities Hedging

Instruments	Description
Forwards contract	An OTC contract with an obligation to buy the commodity at an agreed price ('strike price') at a specified point in the future ('maturity date'). Both parties assume counterparty risk and therefore, a deposit is a requirement in the risk of a non-delivery (i.e. settlement of payments) between the bank and the hedging party, upon the date of maturity. No transaction takes place until the contract matures. OTC derivatives are more customisable, illiquid (i.e. not traded), and hence, a more expensive option
Futures contract	A standardised and exchange-traded form of a forward contract which takes into account of counterparty risk. Both parties agree to buy and sell at a strike price at a future date. Unlike forward contracts, futures contracts can be traded as it is transacted on an exchange. Any gains or losses are settled daily (i.e. on mark-to-market basis) and, therefore, margin requirements are applicable for futures trading to ensure that the hedging party does not pose any credit risk
Option	An option provides the right, but not the obligation, to buy or sell a commodity at a strike price within a certain time period. There are three types of options: • Call option – which provides the right to buy an asset. This type of option protects against a price rise of the underlying commodity • Put option – which provides the right to sell an asset. This type of option protects against price fall of a commodity • Collar option – which is a hybrid instrument using a combination of both a call and a put option. It protects against both a price rise and fall of a commodity
Swap	An OTC contract whereby two parties concurrently exchange cash flows with one another which are dependent on the price of a commodity over a certain time period. This involves one party preferring to pay a fixed rate over a floating rate for a commodity, or vice versa. The two parties involved in the swap contract will then be 'swapping' cash flows with one another

Source: MAVCOM Analysis, ASL Holders

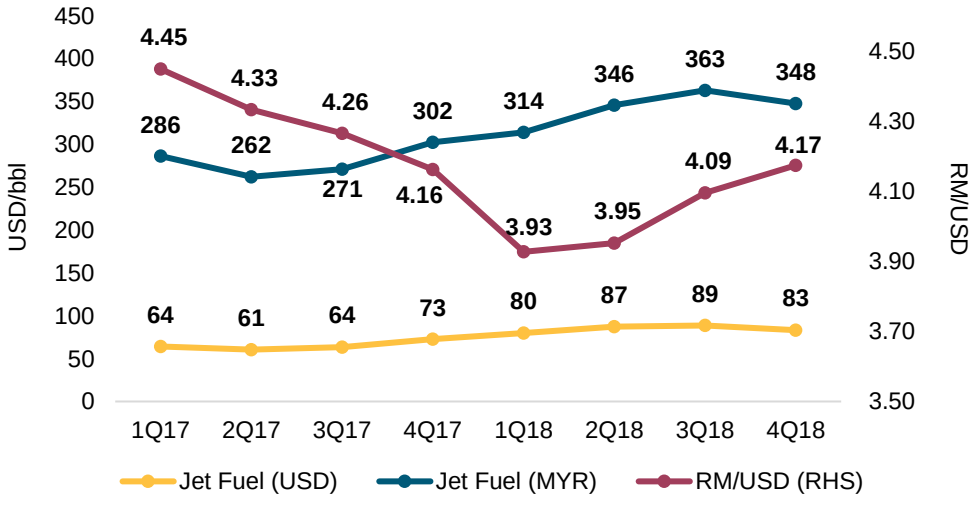
Apart from the cost of the financial instrument, several other factors are also considered by airlines when hedging. For example, it is also pertinent for an airline to consider its own financial standing; **airlines with good credit standing are able to have a longer hedging horizon**, in some cases up to five years, from the common one-to-two years. In addition, **flexible credit lines may also be offered to those airlines with good credit standing**. In recent times, non-financial institutions such as fuel companies (e.g. BP, Shell) have also started to offer hedging facilities directly to airlines, creating indirect competition with financial institutions in hedging.

Airlines Also Hedge Foreign Currency Movements and Interest Rates

Commodity hedging is just one part of airlines' business risk management. **Given that airlines usually derive revenue and incur cost in various currencies, a mismatch between domestic and foreign currencies may arise, exposing airlines to currency risk**. For example, jet fuel prices are quoted in USD. If the value of USD strengthens against that of the domestic currency of the airline, the fuel cost expressed in the domestic currency may increase even without any corresponding increase in the USD price of jet fuel (see Figure 37).

For example, the growth of jet fuel price per barrel in USD between 1Q18 and 4Q18 was 3.8% QoQ. However, due to the depreciation of RM against USD of 6.1% QoQ for the same period, the jet fuel price per barrel in RM grew by 10.7% QoQ. In this case, the effect of a currency depreciation in RM against USD had affected the jet fuel price in RM. Therefore, foreign currency hedging is also undertaken to mitigate the impact of exchange rate movements on jet fuel prices.

Figure 37: Impact of Exchange Rate Movement on Jet Fuel Price



Source: Thomson Reuters

Airlines also hedge interest rates to manage the risks associated with their financial obligations that are on floating interest rates, such as the purchases or leasing of aircraft. Losses from foreign currency movements and interest rate fluctuations may negate gains from jet fuel. Therefore, airlines would also hedge against exchange and interest rates movements as part of its overall risk management framework.

Jet fuel hedging policies and strategies of airlines

Hedging Policies and Strategies Differ Across Airlines

Airlines purchase jet fuel at prevailing market prices but manage risks through a documented hedging strategy. **Airlines use different hedging practices when hedging jet fuel. These differences may be due to the differences in the airline's business model, senior management team appetite on risk management, or an airline's financial standing**. Selected jet fuel hedging practices of various airlines are described as in Table 18.

Table 18: Jet Fuel Hedging Practices by Selected Airlines

Airline	Hedging Practices
AirAsia Berhad	• Hedged 13% of 2018 fuel requirements using Singapore Jet Kerosene fixed swap Brent option, Brent fixed swap and Crack fixed swap contracts
Air Canada	• Can hedge up to 75% of the projected jet fuel purchases required for the next 12 months, 50% for the next 13 to 24 months, and 25% for the next 25 to 36 months. These are maximum limits (but not mandated) • Derivative contracts are based on jet fuel, heating oil, and crude-oil • Purchased crude-oil call options to cover a portion of 2017 fuel exposure
Cathay Pacific Group	• Can reduce exposure to fuel price risk by hedging a percentage of its expected fuel consumption using financial instruments (equivalent to forward contracts) to achieve its desired hedging position • Hedged approximately 45% and 15% of fuel consumption for 2018 and 2019, respectively (at a Brent strike price; 2018: USD100/bbl and 2019: USD80/bbl)
International Airlines Group	• Can hedge a proportion of fuel consumption for up to three years, within certain defined limits using options, swaps, and future

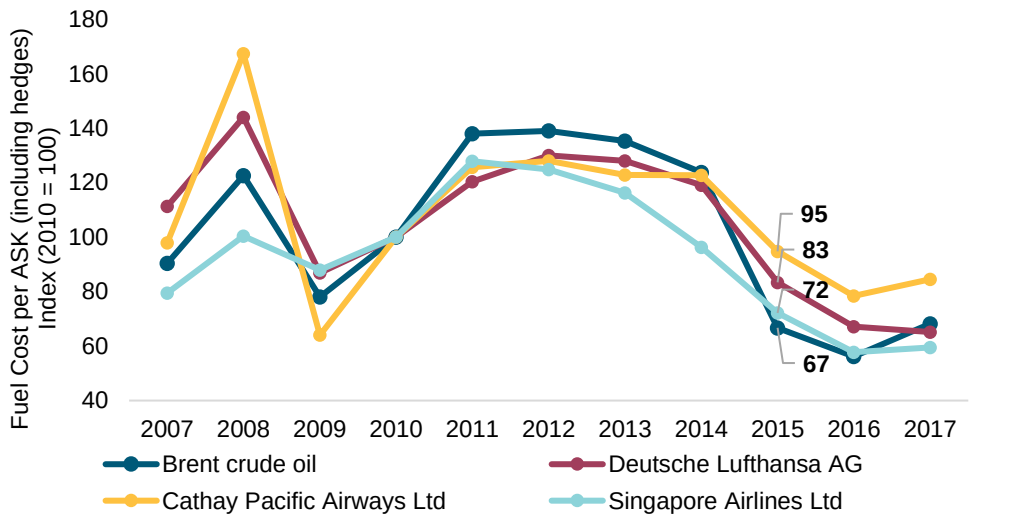
Airline	Hedging Practices
Lufthansa Group	• Can hedge up to 5% monthly of total fuel requirement up to 24 months forward. The amount hedged each month can result in an overall hedging level of up to 85% • Hedged 73% of 2019 fuel requirement at USD66/bbl and 24% of 2020 fuel requirement at USD70/bbl
Qantas Group	• Can hedge fuel consumption up to two years forward within specific limits, using options and swaps on jet kerosene, gasoil, and crude oil to manage exposure to the USD price of aviation fuel • Hedged 73% for the remainder of the 2018/2019 fiscal year
Ryanair	• Hedged 90% and 19% of jet fuel exposure for the fiscal year ending March 2019 (at USD583 per metric tonne) and March 2020 (at USD690 per metric tonne), respectively, using forward jet fuel contracts
Singapore Airlines Group	• Can hedge up to 20 quarters forward using jet fuel swaps, option, collar contracts, Intercontinental Exchange Brent swap contracts, and Brent-Means of Platts crack swap contracts • Hedged 46% (as at 31 March 2018) of the estimated fuel consumption of the Group at an average price range of USD55 – USD58/bbl using Brent crude oil with maturities up to 2023
Southwest	• Hedged 70% of estimated fuel consumption for 2019, 53% for 2020, 25% for 2021, and less than 5% beyond 2021 using fuel derivative contracts for West Texas Intermediate and Brent crude oil, heating oil, and Gulf Coast jet fuel

Source: Latest available airlines annual reports

Figure 38 illustrates the fluctuation of airlines fuel cost per ASK and crude oil prices between 2007 and 2017 (indexed; 2010 = 100). As hedging policies of airlines vary from one another, the impact of higher fuel costs is not uniform across airlines. These hedging policies affect hedging limits, duration of hedging contracts, and the respective contract strike price. The interaction of these factors can prevent airlines from capitalising on lower prevailing market prices quickly enough when the price of oil declines.

For example, in 2015, the fuel price per ASK (including hedges) index for Cathay Pacific, Lufthansa, and Singapore Airlines were 95, 83, and 72, respectively, but the crude oil price index was 67. The three airlines each incurred varying fuel costs owing to the duration of hedging contracts entered into and the contract strike price – Singapore Airlines' fuel cost was close to the average market price for Brent crude oil in 2015 largely owing to its hedges at lower contract prices signed in the years when oil prices were declining. However, in the case of Cathay Pacific, hedging contracts with higher strike prices and longer durations prevented them from having lower fuel costs relative to its peers.

Figure 38: Fuel Cost per ASK for Selected Airlines and Oil Trend Index



Source: MAVCOM Analysis, Bloomberg

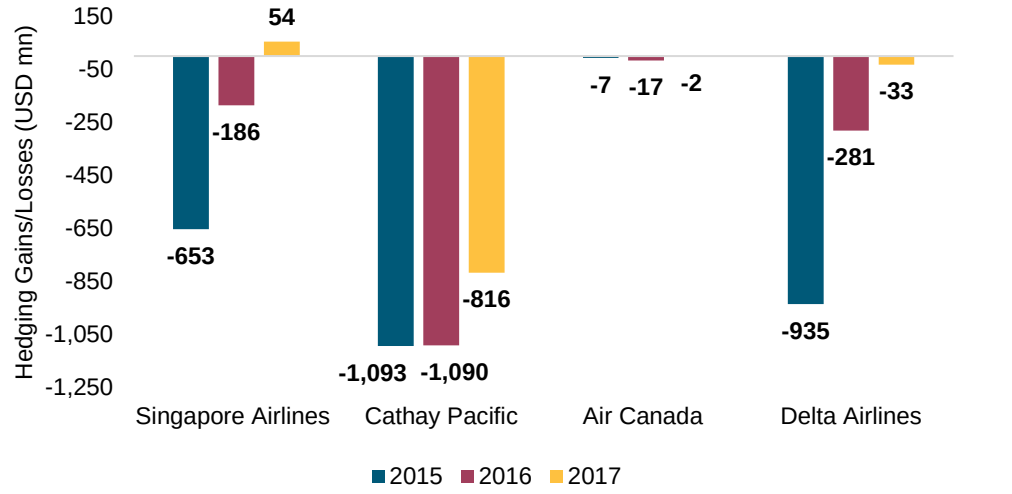
A typical hedging policy will entail the hedging limit and hedging horizon based on the forecasted monthly or annual volume of jet fuel required. This is a key governance process to prevent any excessive risk-taking activities as hedging, if not executed diligently, can bring financial harm to an airline.

Airlines Can Also Incur Losses When Hedging its Jet Fuel Requirements

The volatility of crude oil prices can, in some cases, negate any benefit arising from hedging activities. For example, when oil prices are declining, jet fuel hedging becomes unattractive to the airlines as they can benefit from falling spot prices. This benefit is diminished for highly-hedged airlines as they have locked in a higher price in their hedging contracts relative to the prevailing spot prices. These airlines are unable to take full advantage of falling spot prices.

As shown in Figure 39, airlines can incur losses due to the volatility in oil prices. For example, the average oil price reduced by 46.1% YoY to USD54/bbl in 2015 (2014: USD99/bbl) and decreased further by 15.8% YoY to USD45/bbl in 2016, before rising to USD55/bbl in 2017. Airlines that chose to hedge up to 12 – 24 months forward in 2014, when oil prices averaged USD99/bbl, would have incurred losses as higher prices would have been locked in hedging contracts relative to the prevailing market prices.

Figure 39: Hedging Gains and Losses of Selected Airlines

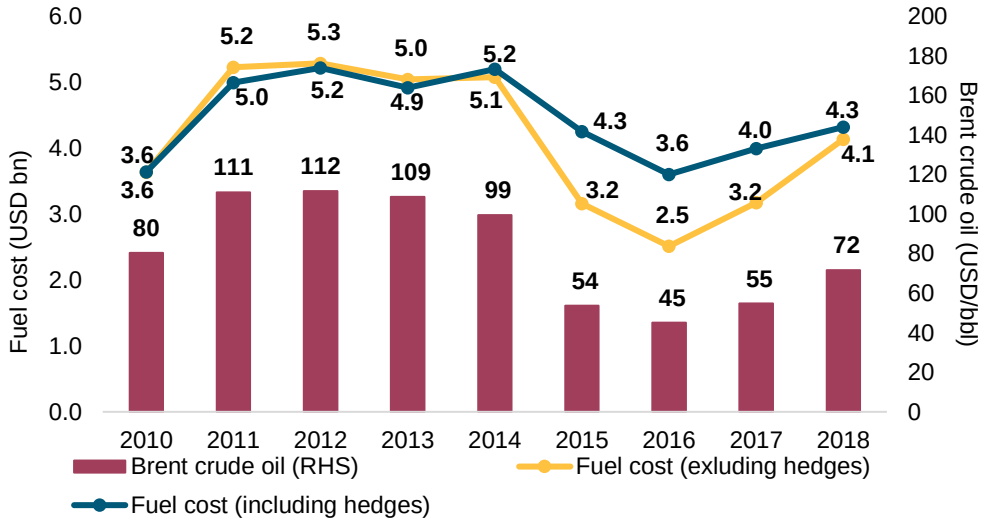


Source: Airlines' annual reports

Cathay Pacific and Air Canada both experienced losses (albeit at different magnitudes) for three consecutive years between 2015 and 2017. The loss was a result of higher jet fuel prices relative to spot prices, which were locked in their hedging contracts. The difference in magnitude of loss between the two airlines could be due to the different benchmarks used (Brent by Cathay Pacific, WTI by Air Canada), weakening of the respective domestic currencies and insufficient hedging against the USD, as well as, different hedging horizon, limit and strike price.

Figure 40 illustrates the airlines' fuel cost excluding and including hedges for Cathay Pacific. In the rising oil price environment up to 2013, Cathay Pacific enjoyed lower fuel costs via its hedging activities i.e. fuel costs (including hedges) were lower than prevailing spot prices. However, in the declining oil price environment between 2014 and 2016, its fuel costs (including hedges) became greater than spot prices, owing to the airlines' forward-hedging activities in the years before oil prices began to decline.

Figure 40: Fuel cost; including and excluding hedges for Cathay Pacific, 2010 – 2018



Source: MAVCOM Analysis, Bloomberg

Hedging horizon, limit, and strike price in a declining oil price environment can lead to a situation where airlines' estimated fuel cost increases relative to the prevailing crude oil market price, resulting in losses. This would also depend on how highly hedged an airline is, and how far forward the airlines have hedged its jet fuel requirements. If the prevailing market prices decline in a short period of time, a distant hedging horizon and high hedging limit can curb the effectiveness of an airline's hedging activities.

In the example in Table 19, Airline X hedged 60% of its 2015 jet fuel requirements with a contract average strike price of USD85/bbl. However, given the lower average Brent crude market price of USD43/bbl in the same year, Airline X paid USD25/bbl more for its fuel than if it were to purchase jet fuel at the prevailing market price. Airline X's high hedging limit constrained its ability to take advantage of the low prevailing market prices. Given that it also hedged three years forward with relatively high hedging limits, Airline X continued to pay in excess of market prices for its fuel by USD21/bbl and USD6/bbl in 2016 and 2017, respectively.

Table 19: Illustration of Impact of Jet Fuel Hedging Strategy in a Low Oil-Price Environment on a Highly-hedged Airline

For Year	Hedging limit (%) (A)	Average Brent strike price (USD/bbl) (B)	Average Brent crude market price (USD/bbl) (C)	Estimated fuel cost including hedges (USD/bbl)[17] (D)	Gain/(Loss) on fuel cost (USD/bbl) (C-D)
Airline X (Highly-hedged and three-year hedging horizon)					
2015	60	85	43	68	(25)
2016	55	90	51	72	(21)
2017	40	81	65	71	(6)

Source: MAVCOM Analysis

In contrast to Airline X, Airline Y had a lower hedging limit (2015: 20%, 2016: 12%) and a shorter hedging horizon of two years (see Table 20). As a result, Airline Y overpaid only USD5/bbl and USD2/bbl for its fuel in 2015 and 2016, respectively. Because of the shorter hedging horizon, Airline Y was also able to take advantage of the low market price in 2017.

Table 20: Illustration of Impact of Jet Fuel Hedging Strategy in a Low Oil-Price Environment on a Lightly-hedged Airline

For Year	Hedging Limit (%) (A)	Average Brent strike price (USD/bbl) (B)	Average Brent crude market price (USD/bbl) (C)	Estimated Fuel cost including hedges (USD/bbl) (D)	Gain/(Loss) on fuel cost (USD/bbl) (C-D)
Airline Y (Lightly-hedged and two-year hedging horizon)					
2015	20	70	43	48	(5)
2016	12	68	51	53	(2)
2017	-	-	65	65	-

Source: MAVCOM Analysis

[17] D = [A x B] + [(1 - A) x (C)]

Due to its policy of not hedging its fuel requirements, Airline Z was able to take advantage of the low prevailing market prices for its fuel in 2015, 2016, and 2017 (see Table 21).

Table 21: Illustration of Impact of Jet Fuel Hedging Strategy in a Low Oil-Price Environment on an Unhedged Airline

For Year	Hedging Limit (%) (A)	Average Brent strike price (USD/bbl) (B)	Average Brent crude market price (USD/bbl) (C)	Estimated Fuel cost including hedges (USD/bbl) (D)	Gain/(Loss) on fuel cost (USD/bbl) (C-D)
Airline Z (Not hedged)					
2015	-	-	43	43	-
2016	-	-	51	51	-
2017	-	-	65	65	-

Source: MAVCOM Analysis

Based on the examples above, in an environment of declining fuel prices, Airlines X and Y face challenges that may hinder their ability to price competitively given these two airlines' higher cost owing to their respective hedging strategy. Airline Z, on the other hand, may be able to take advantage of the low fuel costs and subsequently price its airfares more competitively.

Conversely, **in an environment of rising fuel prices, a high hedging limit and a distant hedging horizon would stabilize an airline's profit margin** in the short term. Airline X and Y may still be able to maintain their cost structure in the short term as fuel costs have been locked-in via hedging. However, Airline Z will experience a sudden rise in fuel costs, which could affect the airlines' ability to price competitively.

Robustness of Hedging Policies and Strategies is Key

Jet fuel costs constitute a significant portion of an airline's total operating costs. Airlines primarily undertake hedging as a risk management tool to stabilise profit margins rather than, in rare circumstances, to make profits. However, hedging also poses downside risks, especially in a declining oil price environment. Thus, **it is essential for airlines to be governed by robust hedging policies that allow for profit margin stability in a rising oil price environment and flexibility in taking advantage of prevailing spot prices when oil prices decline.**

Hedging can also benefit consumers. **In a rising oil price environment, consumers can be protected in the short term against immediate increases in airfares that are usually levied through fuel surcharges**. This is because hedging can cap fuel costs in the short term, providing airlines with a buffer to contain such costs while their longer-term business strategy is reassessed in lieu of rising oil prices. In recent years, airlines such as Cathay Pacific and All Nippon Airways have levied fuel surcharges on passengers due to volatile oil price movements. However, if fuel prices persistently rise in the long term, the increased costs could ultimately be reflected in the base airfare.

In undertaking their hedging strategies, airlines would also need to consider its management risk appetite, market conditions, financial standing, choice of financial instruments, and selection of counterparties. These factors will determine the operational aspects in its hedging strategy such as the strike price, hedging limit and horizon. The consideration of all these factors is key in ensuring a successful hedging strategy.

APPENDIX A: DATA TABLES

Table A1: Quarterly Malaysia's and Global GDP Growth, 2017 – 2018

Quarter	Malaysia's GDP YoY Growth (%)	Global GDP YoY Growth (%)
1Q17	5.6	2.7
2Q17	5.8	2.9
3Q17	6.2	3.0
4Q17	5.9	3.2
1Q18	5.4	3.3
2Q18	4.5	3.2
3Q18	4.4	3.0
4Q18	4.7	2.7

Source: DOS, Thomson Reuters

Table A2: Malaysia's GDP Growth, 2010 – 2019F

Year	YoY Growth (%)
2010	7.5
2011	5.3
2012	5.5
2013	4.7
2014	6.0
2015	5.1
2016	4.2
2017	5.9
2018	4.7
2019F	4.3 – 4.8

Source: MOF, Thomson Reuters

Table A3: Quarterly Malaysia's Tourist Arrivals, 2017 – 2018

Quarter	Total Tourist (million)	YoY Growth (%)
1Q17	6.6	-0.5
2Q17	6.3	-0.7
3Q17	6.5	-3.2
4Q17	6.5	-7.3
1Q18	6.5	-1.7
2Q18	6.2	-1.7
3Q18	6.7	2.6
4Q18	6.5	-1.0

Source: DOS, MOTAC, Thomson Reuters

Table A4: Trade Value Quarterly YoY Growth Trends, 2017 – 2018

Quarter	YoY Growth (%)					
	Exports Malaysia	Imports Malaysia	Global Exports	Global Imports	ASEAN Exports	ASEAN Imports
1Q17	21.6	27.6	11.0	10.3	7.2	8.0
2Q17	20.5	18.1	7.3	6.9	8.6	9.7
3Q17	21.8	19.7	11.1	10.1	7.9	9.2
4Q17	12.3	14.4	13.3	12.7	7.3	8.8
1Q18	5.5	-0.7	15.1	14.5	6.7	8.4
2Q18	8.3	8.5	13.6	12.9	6.1	8.0
3Q18	5.1	6.3	11.3	9.4	5.5	7.1
4Q18	8.1	5.7	6.4	5.0	4.8	6.2

Source: DOS, Thomson Reuters

Table A5: Oil, Jet Fuel, and Exchange Rate Trends, 2017 – 2018

Quarter	Crude Oil (USD/bbl)	Jet Fuel (USD/bbl)	RM/USD
1Q17	52	64	4.45
2Q17	48	61	4.33
3Q17	48	64	4.26
4Q17	55	73	4.16
1Q18	63	80	3.93
2Q18	68	87	3.95
3Q18	70	89	4.09
4Q18	59	83	4.17

Source: DOS, Thomson Reuters

Table A6: Capacity Growth in terms of ASK by Malaysian Carriers, 2011 – 2019F

Year	ASK (billion)	YoY Growth (%)
2011	98.9	12.2
2012	95.1	-3.8
2013	111.4	17.1
2014	127.3	14.3
2015	124.2	-2.5
2016	119.3	-4.0
2017	130.8	9.6
2018	135.2	3.4
2019F	137.8	2.0

Source: MAVCOM Estimates, AirportIS

Table A7: Seat Capacity Growth by Malaysian Carriers, 2011 – 2019F

Year	Seats (million)	YoY Growth (%)
2011	52.0	11.3
2012	53.1	2.1
2013	61.1	15.1
2014	67.7	10.8
2015	70.3	3.9
2016	69.4	-1.3
2017	74.3	7.0
2018	76.7	3.2
2019F	81.1	5.7

Source: MAVCOM Estimates, AirportIS

Table A8: Passenger Traffic, 2010 – 2019F

Year	Passenger Traffic (million)	YoY Growth (%)
2011	65.3	12.2
2012	68.6	4.9
2013	81.5	18.9
2014	85.6	5.1
2015	86.3	0.8
2016	91.7	6.2
2017	99.8	8.1
2018	102.5	2.7
2019F	105.5 – 106.7	2.9 – 4.1

Source: MAVCOM Estimates, AOL Holders

Table A9: Percentage of Airlines' Market Share for Domestic Routes by Passengers, 2017 – 2018

Quarter	AirAsia	Firefly	Malindo	MAB
1Q17	52.0	5.5	14.8	27.7
2Q17	55.4	5.7	11.3	27.6
3Q17	58.5	5.7	11.6	24.2
4Q17	59.2	5.6	11.9	23.3
1Q18	62.1	5.7	10.3	21.9
2Q18	61.8	5.5	9.0	23.8
3Q18	62.8	5.4	9.5	22.3
4Q18	65.0	5.2	10.3	19.5

Source: MAVCOM Analysis, AirportIS

Table A10: Percentage of Airlines' Market Share for International Routes by Passengers, 2017 – 2018

Quarter	AirAsia	AirAsia X	Firefly	MAB	Malindo	Others
1Q17	27.0	11.8	0.9	17.8	7.8	34.6
2Q17	27.6	11.6	0.8	17.3	8.0	34.6
3Q17	27.6	11.0	0.8	15.9	8.5	36.2
4Q17	28.0	11.3	0.8	15.9	8.2	35.8
1Q18	28.5	11.6	0.8	15.5	8.4	35.2
2Q18	28.4	11.7	0.9	16.9	7.7	34.5
3Q18	27.9	10.5	0.8	17.1	7.7	35.9
4Q18	27.6	10.7	0.9	17.2	7.8	35.9

Source: MAVCOM Analysis, AirportIS

Table A11: Domestic Market Concentration Levels and Load Factors, 2017 – 2018

Quarter	HHI	Load Factor (%)
1Q17	0.3717	76.0
2Q17	0.3991	77.3
3Q17	0.4173	76.9
4Q17	0.4220	78.2
1Q18	0.4478	79.5
2Q18	0.4494	79.7
3Q18	0.4560	77.3
4Q18	0.4739	76.5

Source: MAVCOM Analysis, AirportIS

Table A12: International Market Concentration Levels and Load Factors, 2017 – 2018

Quarter	HHI	Load Factor (%)
1Q17	0.1289	82.4
2Q17	0.1305	82.1
3Q17	0.1256	81.9
4Q17	0.1276	82.1
1Q18	0.1298	82.6
2Q18	0.1328	81.1
3Q18	0.1287	81.7
4Q18	0.1285	80.1

Source: MAVCOM Analysis, AirportIS

Table A13: RASK for Domestic and International Routes, 2017 – 2018

Quarter	RASK (sen)	
	Domestic	International
1Q17	16.4	10.8
2Q17	17.5	10.6
3Q17	18.7	10.4
4Q17	18.3	10.5
1Q18	16.9	10.5
2Q18	17.4	9.6
3Q18	18.7	10.0
4Q18	16.1	10.1

Source: MAVCOM Analysis, AirportIS

Table A14: Market Shares of the Aerodrome Operator's Segment, 2018

Company	Market Share (%)	
	Revenue	Passenger Traffic
MAHB	98.2	96.5
Senai Airport	1.7	3.4
TMDBSB	0.1	0.0
SSSB	0.0	0.1

Source: MAVCOM, AOL Holders

Table A15: Market Shares of Airports in Malaysia in Terms of Passenger Traffic, 2018

Airport	Passengers Handled (mppa)
KUL	58.4
BKI	8.4
PEN	7.6
KCH	5.4
JHB	3.4
LGK	2.7
MYY	2.3
SZB	1.9
KBR	1.6
TWU	1.6
SBW	1.5
SDK	0.9
BTU	0.9
TGG	0.9
AOR	0.8
LBU	0.6
IPH	0.3
KUA	0.3
LDU	0.1
KTE	0.1
MZV	0.1
MKZ	0.1

Source: MAVCOM, AOL holders

Table A16: Breakdown of ATRs Awarded by Region, 2016 – 2018

Region	AirAsia	AirAsia X	Firefly	MAB	Malindo	Raya Airways	MAS Wings	Total
2016								
Domestic	3			2	25			30
Africa		1						1
Americas		1						1
ASEAN	4				12			16
India				1	5			6
China		7		8	7			22
Rest of Asia	1	3		3	7	1		15
Australasia		2			1			3
Europe								
Middle East		3			2			5
2017								
Domestic	31		2	3	14			50
Africa								
Americas								
ASEAN	22	1		4	26			53
India	10	1		6	3	2		22
China	8	3		11	28			50
Rest of Asia	6	7		6	4			23
Australasia		1		2	4			7
Europe		1						1
Middle East		1			2			3
2018								
Domestic	49	0	1	1	7	2	3	63
Africa								0
Americas		1			0	0		1
ASEAN	30	1	1	5	9	2		48
India	1	1		3	4	0		9
China	15	9		6	30	0		60
Rest of Asia	3	7		7	1	0		18
Australasia	0	1		1	3	0		5
Europe								0
Middle East				1	0	0		1

Source: MAVCOM

Table A17: Utilisation of ASAs, 2018

Country	Number of Flights Per Week	
	By Malaysian designated airlines	By respective domestic designated airlines
Australia	126	0
Bangladesh	40	21
Brunei	18	27
Cambodia	66	0
China	246	161
Hong Kong	70	42
India	197	14
Indonesia	398	300
Japan	44	21
Lao PDR	3	0
Macao	21	0
Maldives	7	0
Myanmar	32	0
Nepal	21	8
New Zealand	14	0
Pakistan	5	4
Philippines	35	38
Saudi Arabia	16	55
Singapore	404	223
South Korea	40	53
Sri Lanka	21	14
Taiwan	56	21
Thailand	248	86
United Kingdom	14	7
United States	7	0
Vietnam	129	21

Source: MAVCOM

Table A18: Quarterly Passenger Traffic Trend, 2016 – 2018

Quarter	Passenger Traffic (million)	YoY Growth (%)
1Q16	21.8	4.1
2Q16	21.6	0.1
3Q16	23.6	8.6
4Q16	24.3	10.2
1Q17	24.0	9.9
2Q17	24.5	13.0
3Q17	25.2	7.1
4Q17	25.6	5.2
1Q18	25.3	5.4
2Q18	25.1	2.8
3Q18	25.6	1.5
4Q18	26.5	3.5

Source: MAVCOM Analysis, AOL holders

Table A19: Quarterly Passenger Traffic Trend by Region, 2017 – 2018

Quarter	YoY Growth (%)		
	Domestic	ASEAN	International
1Q17	8.2	8.3	15.0
2Q17	8.9	11.9	23.6
3Q17	1.1	12.7	14.8
4Q17	-1.5	9.8	15.2
1Q18	-0.9	12.0	11.9
2Q18	0.3	8.0	2.8
3Q18	-0.1	6.1	0.4
4Q18	4.9	4.5	0.1

Source: MAVCOM Analysis, AOL holders

Table A20: Malaysia's Aircraft Movements, 2017 – 2018

Quarter	Aircraft Movement (thousand)	YoY Growth (%)
1Q17	223.8	4.8
2Q17	223.9	6.8
3Q17	230.6	5.1
4Q17	229.1	1.3
1Q18	227.3	1.5
2Q18	226.5	1.2
3Q18	232.8	1.0
4Q18	239.3	4.4

Source: MAVCOM Analysis, AOL Holders

Table A21: Malaysia's Cargo Movements, 2017 – 2018

Quarter	Cargo Movement (thousand metric tonnes)	YoY Growth (%)
1Q17	240.2	14.1
2Q17	242.2	9.6
3Q17	249.8	12.7
4Q17	265.0	3.9
1Q18	240.7	0.2
2Q18	240.8	-0.6
3Q18	259.5	3.9
4Q18	269.0	1.5

Source: MAVCOM Analysis, AOL Holders

Table A22: Malaysian Carriers' Load Factors Trend, 2011 – 2018

Quarter	Load Factor (%)
1Q11	71.9
2Q11	74.4
3Q11	74.0
4Q11	73.7
1Q12	73.8
2Q12	74.0
3Q12	73.1
4Q12	75.1
1Q13	75.3
2Q13	76.5
3Q13	79.6
4Q13	77.3
1Q14	76.5
2Q14	75.0
3Q14	73.2
4Q14	73.9
1Q15	72.5
2Q15	71.9
3Q15	73.4
4Q15	75.0
1Q16	76.9
2Q16	75.9
3Q16	81.2
4Q16	80.9
1Q17	82.4
2Q17	81.1
3Q17	80.2
4Q17	87.4
1Q18	81.6
2Q18	83.6
3Q18	83.1
4Q18	78.8

Source: MAVCOM Analysis, AirportIS

Table A23: Malaysian Carriers' Average Fares Trend, 2011 – 2018

Quarter	Domestic (RM)	International (RM)
1Q11	245	570
2Q11	255	575
3Q11	255	640
4Q11	248	607
1Q12	241	549
2Q12	259	547
3Q12	232	501
4Q12	245	511
1Q13	229	505
2Q13	252	490
3Q13	245	527
4Q13	246	585
1Q14	222	587
2Q14	217	526
3Q14	229	527
4Q14	237	559
1Q15	224	567
2Q15	226	533
3Q15	247	601
4Q15	234	570
1Q16	205	519
2Q16	223	508
3Q16	219	524
4Q16	239	531
1Q17	207	521
2Q17	207	499
3Q17	236	506
4Q17	234	467
1Q18	217	537
2Q18	220	482
3Q18	230	459
4Q18	215	467

Source: MAVCOM Analysis, AirportIS

Table A24: Malaysian Carriers' RASK and CASK Trends, 2017 – 2018

Quarter	RASK (sen)	CASK (sen)	RASK-CASK Spread (sen)
1Q17	16.3	17.1	-0.9
2Q17	15.9	16.5	-0.6
3Q17	16.0	16.7	-0.7
4Q17	16.6	17.2	-0.6
1Q18	16.7	16.8	-0.1
2Q18	15.7	17.0	-1.2
3Q18	16.4	18.3	-1.8
4Q18	16.4	18.9	-2.5

Source: MAVCOM Analysis, ASL Holders

Table A25: Revenue and Operating Profit Margin of Malaysian Carriers', 2017 – 2018

Quarter	Revenue (RM billion)	Operating Profit Margin(%)
1Q17	5.9	1.0
2Q17	5.7	1.2
3Q17	6.0	1.2
4Q17	6.9	1.2
1Q18	6.4	8.0
2Q18	5.6	-2.8
3Q18	6.0	-6.1
4Q18	6.3	-10.0

Source: MAVCOM Analysis, ASL Holders

Table A26: Revenue and Operating Profit Margin of ASP Holders, 2017 – 2018

Quarter	Revenue (RM billion)	Operating Profit Margin (%)
1Q17	343.2	10.7
2Q17	483.4	29.0
3Q17	377.6	13.5
4Q17	410.6	39.8
1Q18	382.5	14.1
2Q18	414.8	17.0
3Q18	410.6	15.6
4Q18	410.4	-30.8

Source: MAVCOM Analysis, ASL Holders

Table A27: Revenue of ASP Holders by Sub-Segment, 2017 – 2018

Quarter	Revenue (RM million)					
	Aerial work – cloud seeding, mapping	Oil & Gas	On-demand cargo	On-demand charter	Pleasure flying	Surveying, observation & patrol
1Q17	13.2	178.8	4.1	145.8	1.2	0.3
2Q17	14.6	276.7	3.9	182.8	1.1	4.2
3Q17	14.4	212.0	4.8	142.6	1.3	2.4
4Q17	12.4	177.5	7.8	209.0	1.2	2.6
1Q18	16.1	177.6	22.4	162.4	1.0	2.9
2Q18	25.3	164.8	26.5	194.2	1.1	4.3
3Q18	14.2	162.1	21.0	140.7	0.8	4.2
4Q18	11.5	164.5	24.2	205.8	0.5	4.0

Source: MAVCOM Analysis, ASP Holders

Table A28: Operating Profit Margin of ASP Holders by Sub-Segment, 2017 – 2018

Quarter	Revenue (RM million)					
	Aerial work – cloud seeding, mapping	Oil & Gas	On-demand cargo	On-demand charter	Pleasure flying	Surveying, observation & patrol
1Q17	7.3	10.2	0.0	10.2	-46.4	-178.7
2Q17	11.8	43.0	0.0	9.1	-57.9	1.2
3Q17	11.9	20.4	0.0	6.6	-56.0	-121.3
4Q17	-7.4	95.7	0.0	1.9	-36.0	-28.0
1Q18	-7.6	29.9	-9.0	1.1	-44.9	21.0
2Q18	39.8	27.7	3.9	4.9	-77.7	19.9
3Q18	23.8	28.5	0.0	13.1	-85.4	-50.6
4Q18	-1.0	-65.7	0.0	-6.7	-200.0	-130.2

Source: MAVCOM Analysis, ASP Holders

Table A29: Revenue and Operating Profit Margin of AOL Holders, 2017 – 2018

Quarter	Revenue (RM billion)	Operating Profit Margin (%)
1Q17	1.2	23.2
2Q17	1.2	21.2
3Q17	1.3	21.4
4Q17	1.3	17.8
1Q18	1.2	52.7
2Q18	1.2	25.4
3Q18	1.3	29.4
4Q18	1.3	12.1

Source: MAVCOM Analysis, AOL Holders

Table A30: Revenue of Ground Handling Sub-Segment by Business, 2015 – 2018

Year	Revenue (RM million)		
	Catering	General Ground Handling	Refuelling
2015	336.6	62.4	18.9
2016	321.7	1,032.1	20.8
2017	349.1	1,105.0	14.5
2018	334.3	1,308.3	37.2

Source: MAVCOM, GHL Holders

Table A31: Operating Profit Margin of Ground Handling Sub-Segment by Business, 2015 – 2018

Year	Operating Profit Margin (%)		
	Catering	General Ground Handling	Refuelling
2015	4.5	8.4	-3.7
2016	6.2	2.4	-8.0
2017	5.7	0.6	2.4
2018	-2.6	10.2	1.4

Source: MAVCOM, GHL Holders

APPENDIX B: LIST OF LICENCE AND PERMIT HOLDERS

Table B1: AOL Holders

No	Company Name
1	Malaysia Airports (Sepang) Sdn Bhd
2	Malaysia Airports Sdn Bhd
3	Senai Airport Terminal Services Sdn Bhd
4	Sanzbury Stead Sdn Bhd
5	Tanjung Manis Development Sdn Bhd

Source: MAVCOM

Table B2: ASL Holders

No	Company Name
1	AirAsia Berhad
2	AirAsia X Berhad
3	FlyFirefly Sdn Bhd
4	Hijrah Biru Sdn Bhd*
5	Malaysia Airlines Berhad
6	Malindo Airways Sdn. Bhd.
7	MASwings Sdn Bhd
8	My Jet Xpress Airlines Sdn Bhd
9	Raya Airways Sdn Bhd

Source: MAVCOM

*Note: * Conditional ASL holder. MAVCOM may grant a conditional approval to enable the applicant to initiate an application for an AOC with CAAM. If the applicant fails to obtain the AOC within the period of one year or such other period as determined by MAVCOM, the conditional approval shall lapse.*

Table B3: ASP Holders

No.	Company Name
1	Aerial Power Lines Sdn Bhd
2	Aeromanager Sdn Bhd
3	Afjet Sdn Bhd
4	Airod Sdn Bhd
5	Asia Jet Partner Malaysia Sdn Bhd*
6	Asia Tenggara Aviation Services Sdn Bhd
7	Berjaya Air Sdn Bhd*
8	Cempaka Helicopter Corporation Sdn Bhd
9	Eastflite Aviation Services Sdn Bhd*
10	Executive Jets Asia Sdn Bhd*
11	flyGlobal Sdn Bhd
12	Helistar Resources Sdn Bhd
13	Hevilift (M) Sdn Bhd
14	Hornbill Skyways Sdn Bhd
15	Jet Premier One (M) Sdn Bhd
16	Layang Layang Aerospace Sdn Bhd
17	MHS Aviation Berhad
18	Myballoon Adventure Sdn Bhd
19	PLUS Helicopter Services Sdn Bhd
20	Pos Asia Cargo Express Sdn Bhd
21	Prima Air Sdn Bhd
22	Sabah Air Aviation Sdn Bhd
23	Sazma Aviation Sdn Bhd
24	Systematic Aviation Services Sdn Bhd
25	Weststar Aviation Services Sdn Bhd

Source: MAVCOM

*Note: * Conditional ASP holders. MAVCOM may grant a conditional approval to enable the applicant to initiate an application for an AOC with CAAM. If the applicant fails to obtain the AOC within the period of one year or such other period as determined by MAVCOM, the conditional approval shall lapse.*

Table B4: GHL Holders

No	Company Name
1	AeroDarat Services Sdn Bhd
2	Aerohandlers Sdn. Bhd.
3	BCS Contract & Supply Services Sdn Bhd
4	Brahim's SATS Food Services Sdn Bhd
5	Cloudera Aviation Services Sdn. Bhd.
6	Conor Engineering & Services Sdn. Bhd.
7	D'viation Solutions Sdn. Bhd.
8	Elite Jets Sdn. Bhd.
9	Group Team Red Sdn Bhd (known as AirAsia Bhd)
10	Hasrat Asia (M) Sdn. Bhd.
11	Helitech Aviation Services Sdn. Bhd.
12	Jets Fuels Sdn Bhd
13	KLM Line Maintenance Sdn Bhd
14	MAB Kargo Sdn. Bhd.*
15	Malindo Airways Sdn. Bhd.
16	Mas Awana Services Sdn Bhd
17	MNM Aviation Services Sdn Bhd
18	Nusantara Aviation Services Sdn. Bhd.
19	Petron Malaysia Refining & Marketing Bhd.
20	Petronas Dagangan Berhad
21	POS Aviation Sdn. Bhd (KL Airport Services Sdn Bhd)
22	Raya Airways Sdn. Bhd.
23	Sabah Air Aviation Sdn. Bhd.
24	Safeair Technical Sdn. Bhd.
25	Select Fine Foods Sdn. Bhd.*
26	Senai Airport Terminal Services Sdn. Bhd.
27	Shell Malaysia Trading Sdn. Bhd.
28	Shell Timur Sdn. Bhd.
29	Skypark FBO Malaysia Sdn. Bhd.
30	Smooth Route Sdn. Bhd.
31	Total Megalink Sdn. Bhd.

Source: MAVCOM

*Note: * Conditional GHL holders. MAVCOM may grant a conditional approval to enable the applicant to initiate an application for a Technical Approval with CAAM. If the applicant fails to obtain the Technical Approval within the period of one year or such other period as determined by MAVCOM, the conditional approval shall lapse.*

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