

## **KEY HIGHLIGHTS**

### **Passenger traffic growth to slow down in 2018 and 2019**

For the first six months of 2018, passenger traffic grew by 3.9% YoY to 50.3 million, where **domestic traffic declined marginally by 0.6% YoY while international traffic increased 8.4% YoY**. The fall in domestic traffic for 1H18 was due to a 4.0% YoY reduction in domestic seats capacity by several Malaysian carriers. **MAVCOM revised downward its 2018 passenger traffic growth forecast to 1.1% – 2.0% YoY from 6.5% – 7.0% YoY** as per the May 2018 Waypoint which translates into 100.3 million – 101.1 million passengers considering the stronger reduction in domestic seats capacity from 2Q18 onwards. **This trend is expected to persist in 2019 as passenger traffic growth is forecasted at between 2.2% YoY and 3.3% YoY.**

### **Higher number of tourist arrivals by air**

Malaysia's tourist arrivals declined 1.7% YoY in 1Q18 and 2Q18, which is a slower than the decline of 7.3% YoY in 4Q17. The continued decline was due to lower tourist arrivals from Singapore. For the first six months of 2018, data from MOTAC showed that **tourists from China, Indonesia, South Korea, India, and Taiwan increased by 35.9%, 15.3%, 33.7%, 14.7%, and 20.9% YoY, respectively in 1H18**. These tourists—which made up 30.4% of tourist arrivals in during this period—are more likely to travel by air into Malaysia compared to Singaporean tourists.

### **Cautious capacity expansion to support average fares**

For the domestic market, Malaysian carriers reported 5.3% YoY higher average fares of RM219 in 1H18 (1H17: RM207) along with higher average load factor of 80.2% (1H17: 76.6%) resulting from strong demand and lower domestic seats capacity. However, **demand for air travel for international routes was slightly weaker in comparison to prior year as average load factor fell to 80.5% (1H17: 84.5%)** despite average fares remain the same at RM510 in 1H18 compared to 1H17. **In 2019, Malaysian carriers are expected to remain cautious by increasing seat capacity by 2.6% YoY (2018: 3.2% YoY),** mainly driven by expansion of the domestic market, as well as focusing on serving short- and medium-haul destinations.

### **Higher jet fuel cost threatens the profitability of Malaysian carriers**

The slight increase in average domestic fares and flat average international fares translated into flat revenue per available seat kilometre (RASK) of 0.7% YoY to 16.2 sen in 1H18 (1H17: 16.1 sen). Meanwhile, **cost per available seat kilometre (CASK) inched upward only by 0.5% YoY to 16.9 sen in 1H18 (1H17: 16.8 sen)** even though the global jet fuel price increased by 26.0% YoY during the same period. **This may be due to the benefit of fuel hedging and the favourable exchange rate of the Malaysian Ringgit (RM) against the United States Dollar (USD) that appreciated 11.2% YoY to RM3.96/USD in 1H18 (1H17: RM4.46/USD).** Despite these, **Malaysian carriers reported operating losses of RM1.2 million (after excluding a gain in disposal of a subsidiary by a Malaysian carrier) in 1H18** compared to an RM122.7 million operating profit for 1H17. This may persist well into 2019 as the global jet fuel prices are expected to further increase.

## 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	Menzies	John Menzies plc.
ASEAN	Association of Southeast Asian Nations	OPEC	Organization of the Petroleum Exporting Countries
ASA	Air Services Agreement	PETRONAS	Petroleum Nasional Berhad
ASK	Available Seat Kilometres	QoQ	Quarter-on-Quarter
ASL	Air Service Licence	RASK	Revenue per Available Seat Kilometre
ASP	Air Service Permit	RHS	Right Hand Side
ATR	Air Traffic Rights	RM	Ringgit Malaysia
bbl	Barrel	RPK	Revenue Passenger Kilometre
CAAM	Civil Aviation Authority of Malaysia	SATS	SATS Ltd.
CASK	Cost per Available Seat Kilometre	STOLport	Short Take-Off and Landing Airports
Dnata	Dubai National Air Transport Association	UK	United Kingdom
GDP	Gross Domestic Product	US	United States
GHL	Ground Handling Licence	USD	United States Dollar
GST	Goods and Services Tax	YoY	Year-on-Year
HHI	Herfindahl-Hirschman Index		

## 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	MYV	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	CAN	Baiyun International Airport, China (Guangzhou)	6	KNO	Kualanamu International Airport, Indonesia (Medan)
2	CGK	Soekarno-Hatta International Airport, Indonesia (Jakarta)	7	KWL	Liangjiang International Airport, China (Guilin)
3	DOH	Hamad International Airport, Qatar (Doha)	8	NNG	Wuxu International Airport, China (Nanning)
4	JAI	Jaipur International Airport, India	9	TRZ	Tiruchirappalli International Airport, India
5	KIX	Kansai International Airport, Japan (Osaka)	10	TSN	Binhai International Airport, China (Tianjin)

## LICENCE AND PERMIT HOLDERS

### Abbreviations

AeroDarat	AeroDarat Services Sdn. Bhd.
AirAsia	AirAsia Berhad
AirAsia X	AirAsia X Berhad
Firefly	FlyFirefly Sdn. Bhd.
GTR	Ground Team Red Sdn. Bhd.
MAHB	Malaysia Airports Holding Berhad
Malindo	Malindo Airways Sdn. Bhd.
MAB	Malaysia Airlines Berhad
Pos Aviation	Pos Aviation Sdn. Bhd.
Raya Airways	Raya Airways Sdn. Bhd.
Senai Airport	Senai Airport Terminal Services Sdn. Bhd.
SSSB	Sanzbury Stead Sdn. Bhd.
TMDSB	Tanjung Manis Development Sdn. Bhd.

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## SECTION 1: MACROECONOMIC OVERVIEW AND OUTLOOK

### Macroeconomic Overview

Global Economy Grew by 3.0% YoY in 3Q18

According to the BNM, the global economy continued to expand by 3.0% YoY in 3Q18 (2Q18: 3.2% YoY), driven by strong growth of the US and the UK. The BNM highlighted that the GDP growth of the emerging economies moderated in 3Q18 (see Table 1). The advanced economies were supported by strong private consumption due to stable labour markets, declining unemployment rates, and a steady increase in wage growth. The Asian economies reported slower growth as tightening of credit affects investments.

**Table 1: Growth of Selected Economies, 2018**

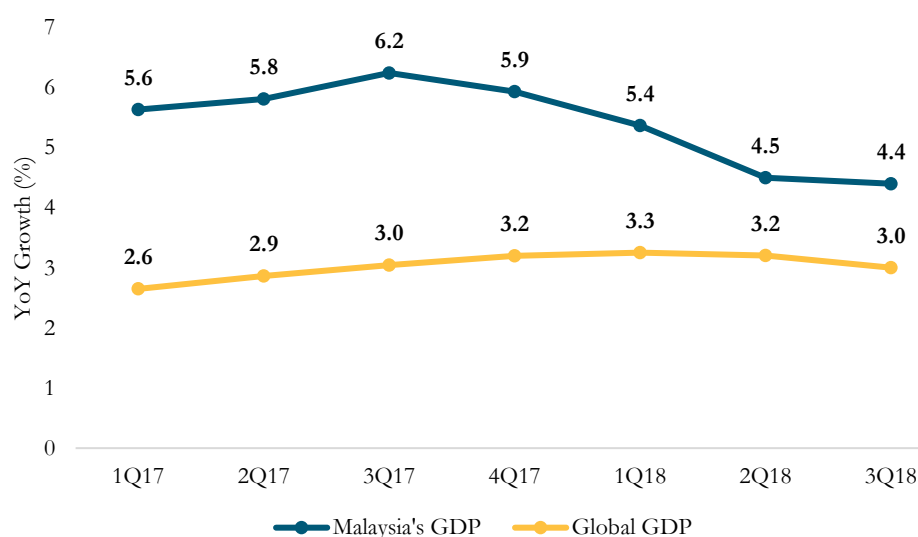
Regions	1Q18 GDP YoY Growth (%)	2Q18 GDP YoY Growth (%)	3Q18 GDP YoY Growth (%)
Philippines	6.8	6.0	6.1
China	6.8	6.7	6.5
<b>Malaysia</b>	<b>5.4</b>	<b>4.5</b>	<b>4.4</b>
Indonesia	5.1	5.3	5.2
Korea	2.8	2.9	2.0
Singapore	4.3	3.9	2.6
Europe	2.5	2.2	1.7
US	2.9	2.8	3.0
UK	1.2	1.3	1.5

Source: BNM, Thomson Reuters

## Malaysia's GDP Grew by 4.4% YoY in 3Q18

The Malaysian economy grew by 4.4% YoY in 3Q18 (2Q18: 4.5% YoY) (see Figure 1), which was the lowest growth rate recorded since 4Q16 (4.5% YoY). The BNM reported that the economic growth was supported by the expansion of services, manufacturing, and construction sectors. However, supply disruptions in the mining sector and slow recovery of the agriculture sector held back the growth in 3Q18. Private consumption grew by 9.0% YoY in 3Q18 (2Q18: 8.0% YoY) mainly due to the positive impact of the abolition of the GST between June and August 2018.

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



Source: DOS, Thomson Reuters

## Macroeconomic Outlook

### Global Economy is Expected to Grow by 3.7% YoY in 2019

In its World Economic Outlook Update for October 2018, the IMF forecasts that the global economy will grow by 3.7% YoY for 2018 and 2019 (2017: 3.6% YoY). The IMF previously forecasted for the global economy in 2018 and 2019 to grow by 3.9% YoY. The downward revisions in the global economic growth are due to the imposition of higher tariffs selected goods imported from China to the US, which may negatively affect the economic growth of China and several Asian economies. Furthermore, growth in the advanced economies may be curtailed by the expectation of tightening global financial conditions as monetary policy normalises.

The growth of the emerging market economies for 2018 has been cut to 4.7% YoY (Previous: 4.9% YoY), whereas the growth of the advanced economies has been revised downward to 2.4% (Previous: 2.5% YoY). In 2019, the growth of the advanced economies will be slower at 2.1% YoY (see Table 2) as indicators—purchasing managers and industrial production indices—in several advanced economies are pointing towards softer growth in forward export orders.

**Table 2: Global GDP Forecast by IMF**

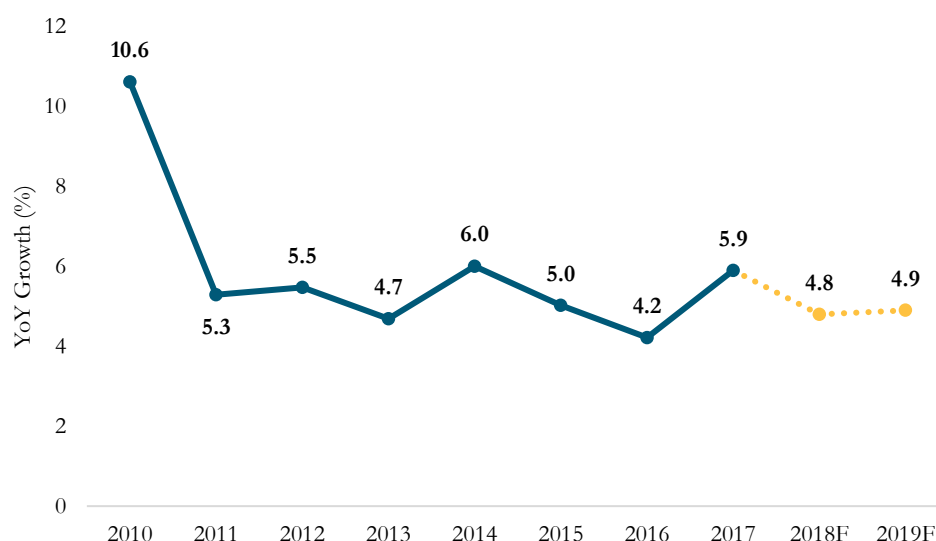
Economy	2018 GDP YoY Growth Forecast (%)	2019 GDP YoY Growth Forecast (%)
Global	3.7	3.7
- <i>Advanced Economies</i>	2.4	2.1
- <i>Emerging Market Economies</i>	4.7	4.7

Source: IMF

### Malaysia's GDP is Expected to Grow by 4.9% YoY in 2019

In the Economic Outlook 2019 Report, the MOF forecasts that the Malaysian economy to grow by **4.9% YoY in 2019**, which is ten basis point higher than the expected 2018 GDP growth of 4.8% YoY (see Figure 2). The MOF believes that the Malaysian economy will continue to be strongly driven by both private consumption and investment. This will be supported by the recovery of the commodity sector that will benefit from Malaysia's major trade partners' demand. This differs from the expectations of the IMF, World Bank, and market consensus that the 2019 growth will be lower than 2018. The MOF's latest 2018 forecast for Malaysia's GDP of 4.8% YoY is lower than the BNM's forecast of between 5.0% YoY and 5.5% YoY.

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



Source: MOF, Thomson Reuters

The World Bank forecasts that Malaysia's GDP to grow by 5.1% YoY in 2019 (2018: 5.4% YoY), whereas the IMF forecasts for lower growth rate of 4.6% YoY (2018: 4.7% YoY) (see Table 3). Both organisations expect 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 3: Malaysia's GDP Forecasts by IMF, World Bank, and Market Consensus**

Source	2018 YoY GDP Growth Forecast (%)	2019 YoY GDP Growth Forecast (%)
IMF	4.7	4.6
World Bank	5.4	5.1
Market Consensus	4.9	4.7

Source: IMF, Thomson Reuters, World Bank

## SECTION 2: INDUSTRY OVERVIEW AND OUTLOOK

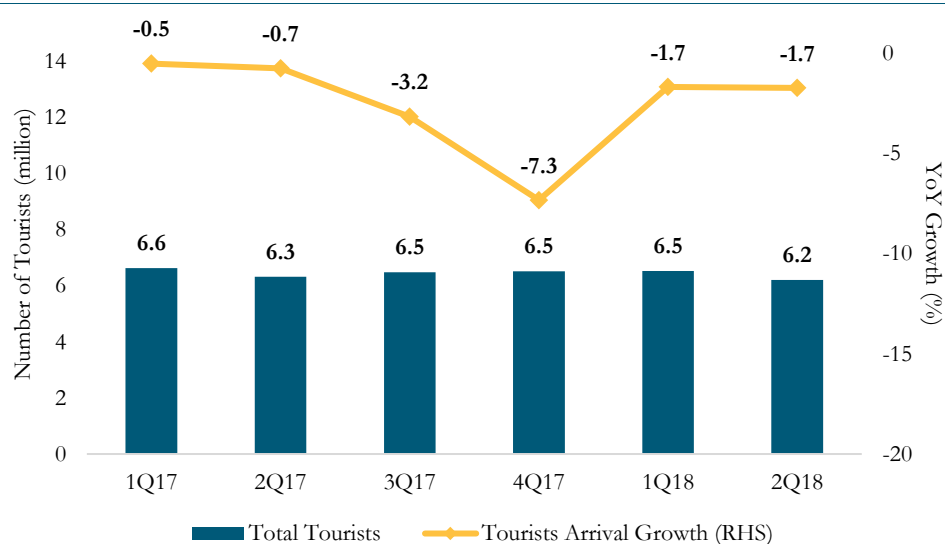
### Industry Overview

#### Tourist Arrivals Continued to Decline in 2Q18

The MOTAC data showed that **Malaysia's tourist arrivals declined by 1.7% YoY in 2Q18** (1Q18: -1.7% YoY) (see Figure 3). The rates of decline over the last two quarters were much less compared to 3Q17 and 4Q17 of -3.2% YoY and -7.3% YoY, respectively.

For the first six months of 2018, the decline in tourist arrivals was mainly due to fewer Singaporean tourists (-17.5% YoY) as they constitute 40.8% of total tourist arrivals. At the same time, MOTAC also reported that the number of **tourists from China, Indonesia, South Korea, India, and Taiwan increased by 35.9%, 15.3%, 33.7%, 14.7%, and 20.9% YoY**, respectively. Tourists from these countries made up 30.4% of tourist arrivals during the period. This is a significant observation for the aviation industry because **tourists from China, Indonesia, South Korea, India, and Taiwan are more likely to travel by air into Malaysia** compared to Singaporean tourists.

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



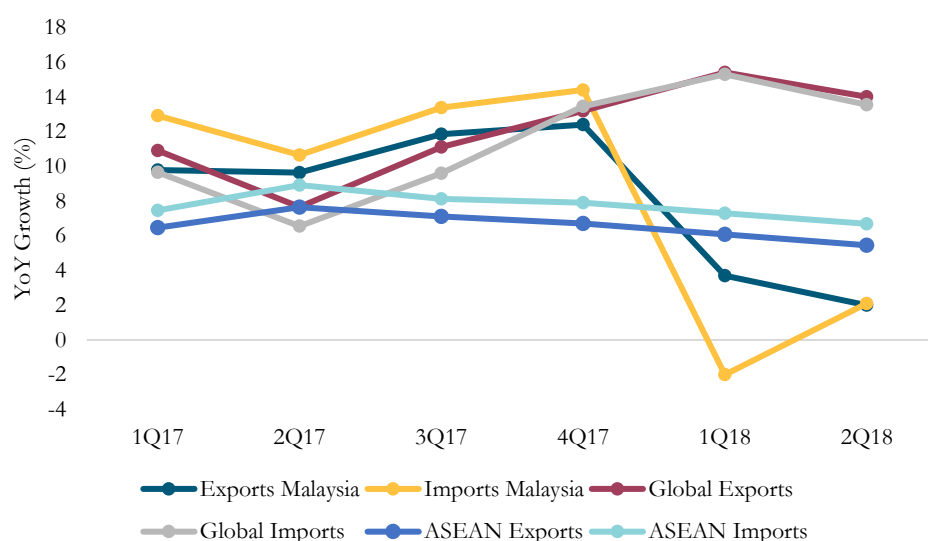
Source: DOS, MOTAC, Thomson Reuters



### Weaker Trade Activities in 2Q18

As highlighted earlier, **exports for Malaysia were weaker in 2Q18 as it grew by 2.0% YoY** (1Q18: 3.70% YoY). A similar trend was also observed for ASEAN exports that grew by 5.5% YoY in 2Q18 (1Q18: 6.1% YoY). These were due to the mixed economic performance of the advanced economies which resulted in overall lower demand for manufactured goods from Malaysia and other ASEAN Member States (see Figure 4). The current position taken by the US with respect to tariffs may result in retaliatory measures taken by its trade partners. In turn, these may suppress growth in global trade.

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



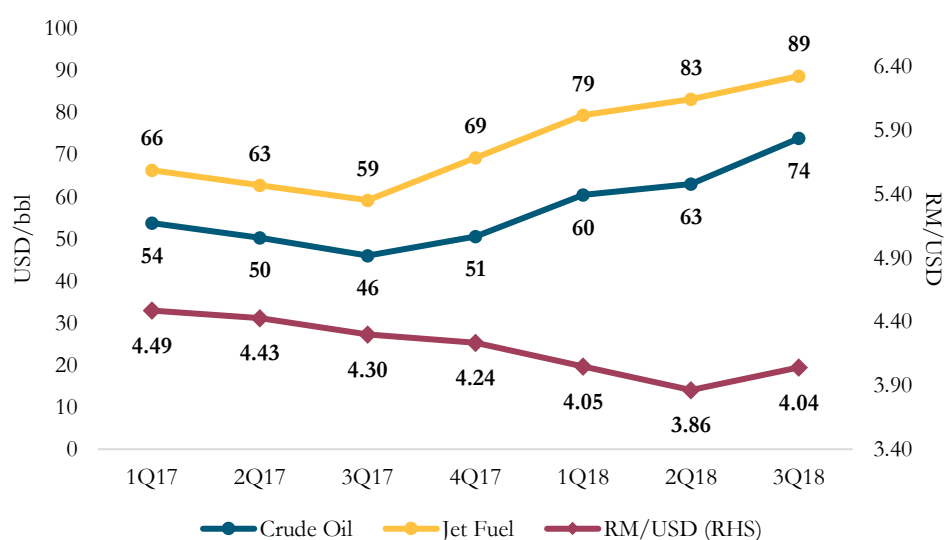
Source: DOS, Thomson Reuters

## Unfavourable Trends of Jet Fuel Price and Exchange Rate

Global crude oil prices and global jet fuel prices continued to climb in 3Q18 to USD74/bbl and USD89/bbl, respectively (see Figure 5). Since 3Q17, both crude oil and jet fuel prices have been on an increasing trend, which provided a challenging operating environment for industry players. The IMF attributed the increase in the global crude oil price to the shortfall of oil supplies from the US Gulf Coast, Libya, the North Sea, and Venezuela. It also highlighted that the OPEC's agreement on production targets that expires at end-2018 also contributed towards the rising oil price. The IATA highlighted that about 51% of the increased in airlines' operating expenditures between 1Q16 and 4Q17 was attributable to higher jet fuel costs and this will increase downward pressure towards airlines' profitability.

Between 1Q17 and 2Q18, the RM had strengthened against the USD, during which the Malaysian currency moved to RM3.86/USD in 2Q18 (1Q18: RM4.05/USD) (see Figure 5). In 1Q17, RM was traded at RM4.49/USD, an appreciation of 14.0% YoY. The favourable exchange rate environment may provide some respite from the higher fuel expenses. For example, in terms of USD, fuel expenses had increased by 32.7% YoY between 2Q17 and 2Q18. However, in terms of RM, fuel expenses had gone up by only 15.7% YoY. However, the RM had depreciated against the USD in 3Q18 by 4.7% QoQ from 2Q18 while at the same time jet fuel price had also increased, which will increase airlines' operating expenses quite significantly.

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



Source: DOS, Thomson Reuters

## Industry Outlook

### Global Passenger Traffic is Expected to Grow by 6.3% YoY in 2019

The IATA reported that **for the first nine months of 2018, global passenger traffic in terms of RPK grew by 6.7% YoY** (9M17: 7.7% YoY), where traffic was affected by Typhoon Jebi in Japan that resulted in the closure of KIX. The IATA also estimated that weather-related disruption has reduced traffic growth by 0.1 – 0.2 percentage points for September 2018. It was also highlighted that **the global passenger traffic growth in 2018 is slower than the typical growth rates** that the IATA was expecting, where it observed that the ability of lower airfares to boost demand is diminishing. Furthermore, **the IATA also noted that the moderation in the global passenger traffic growth in 2018 coincides with the mixed performance of the global economies.**

For 2019, the IATA forecasted that—based on the IMF's latest economic forecasts—the **global passenger traffic in terms of RPK will grow by 6.3% YoY** (2018: 7.0% YoY) (see Table 4). However, the IATA also highlighted that, its forecasting model predicts the global passenger traffic may report a growth rate between 5.5% YoY and 7.1% YoY in 2019, where growth may be brought down by several factors such as declining business confidence, uncertainties of trade policies, and tightening of monetary policies.

**Table 4: Passenger and Cargo Traffic Forecasts by IATA**

Key Figures	2018 YoY Growth Forecast <sup>1</sup> (%)	2019 YoY Growth Forecast <sup>2</sup> (%)
Global Passenger Traffic	7.0	6.3
Global Cargo Traffic	4.0	4.9 <sup>3</sup>

Source: IATA

<sup>1</sup> Growth forecasts in terms of RPK.

<sup>2</sup> Growth forecasts in terms of RPK.

<sup>3</sup> The IATA forecasted that the cargo traffic in terms of FTK to grow at an average of 4.9% YoY every year between 2018 and 2022.

The IATA also reported that for the first nine months of 2018, the passenger traffic for the Asia Pacific region in terms of RPK grew by 9.2% YoY (9M17: 10.0% YoY). The growth is slightly short of the IATA's forecasted passenger traffic growth for the region of 9.5% YoY due to the weak growth reported for several markets such as Japan domestic, Asia to North America, and Asia to the Middle East (see Table 5). The Asia Pacific region is expected to continue to be the main driver of the global passenger traffic growth in 2018.

**Table 5: IATA's Passenger Traffic Forecasts by Region**

Region	2018 YoY Passenger Traffic Growth Forecast <sup>4</sup> (%)
Global	7.0
- <i>North America</i>	4.0
- <i>Europe</i>	7.0
- <i>Asia Pacific</i>	9.5
- <i>Middle East</i>	5.9
- <i>Latin America</i>	6.5
- <i>Africa</i>	4.5

Source: IATA

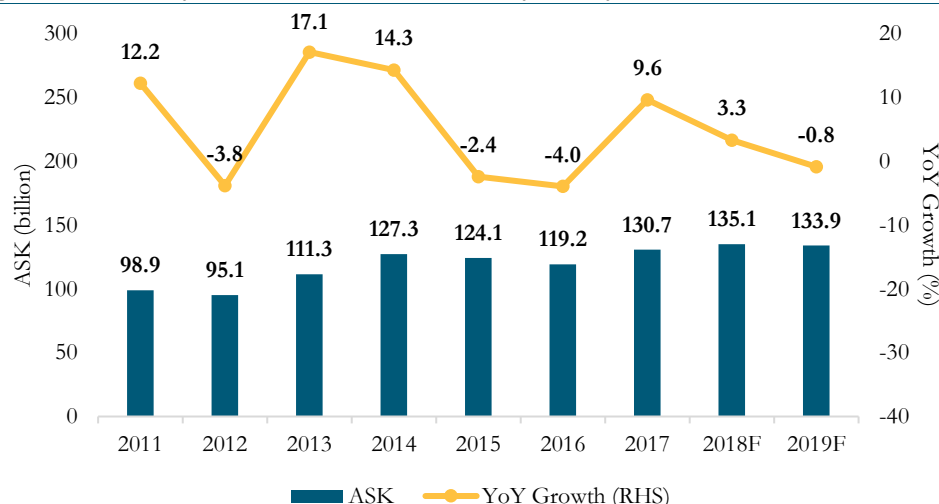
<sup>4</sup> Growth forecasts in terms of RPK.

### Malaysian Carriers to Increase Seats Capacity by 2.6% YoY in 2019

During the first nine months of 2018, the IATA also reported that the global capacity in terms of ASK grew by 6.0% YoY (9M17: 6.4% YoY), which is in line with the IATA's forecasted growth in the global capacity of 6.0% YoY for 2018 (2017: 6.1% YoY). The capacity growth during the first nine months of 2018 was slower than the passenger traffic growth during the same period, thus, increasing the average passenger load factor to 82.3% (9M17: 81.7%).

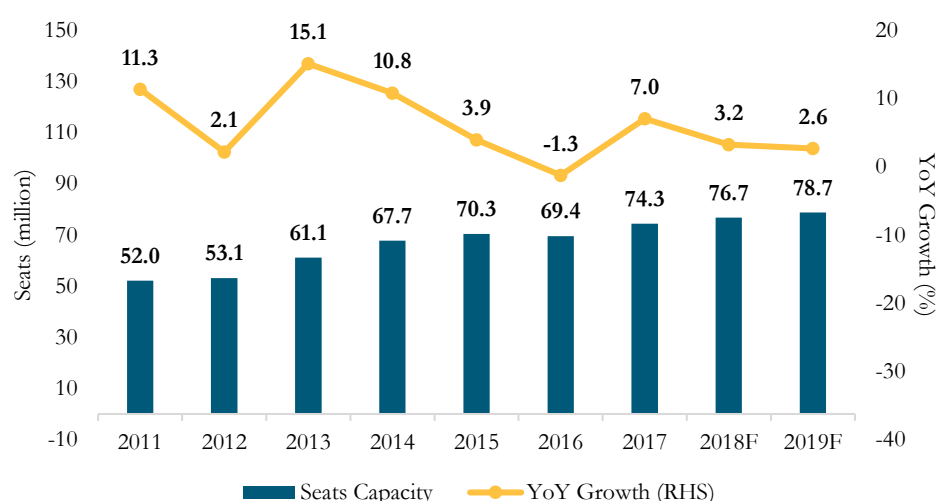
Malaysian carriers' capacity in terms of ASK is expected to decline 0.8% YoY in 2019 (2018: +3.3% YoY) (see Figure 6) despite seats capacity being expected to increase by 2.6% YoY (2018: 3.2% YoY) (see Figure 7). The divergence is mainly attributable to changes in route networks that focus more on serving short- and medium-haul destinations.

**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**



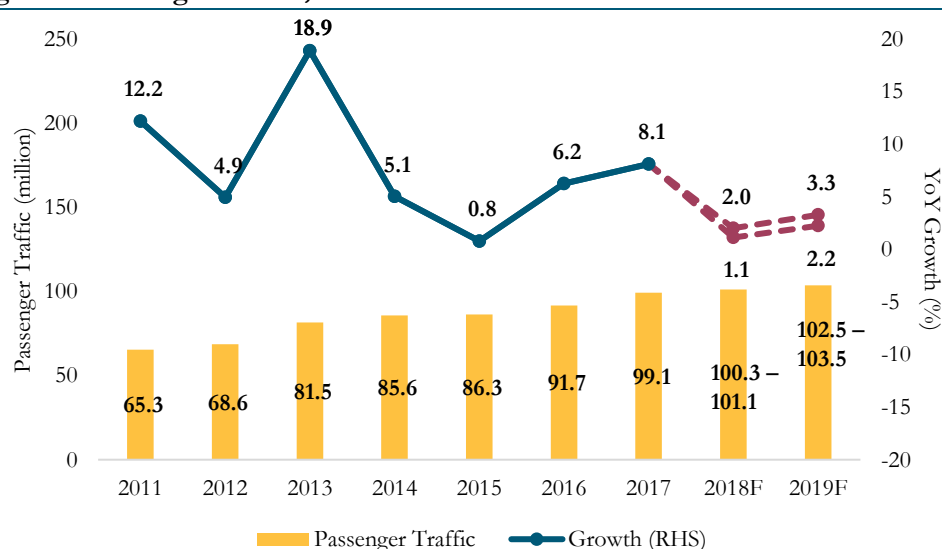
Source: MAVCOM Estimates, AirportIS

## Malaysia's Passenger Traffic to Surpass 100.0 million in 2018

For the first six months of 2018, Malaysia's passenger traffic grew by 3.9% YoY to 50.3 million (1H17: 48.4 million). The passenger traffic growth during this period was weaker than MAVCOM's forecast mainly due to the contraction in domestic passenger traffic as demand was constrained by capacity reduction by the airlines. During this period, two Malaysian carriers reduced their total domestic seats capacity by 28.1% YoY while other Malaysian carriers grew their seats capacity by 18.3% YoY. As a result, the total domestic seats capacity for Malaysian carriers declined 4.0% YoY in during the first six months of 2018 (1H17: 6.8% YoY). On the other hand, the Malaysian carriers' international seats capacity increased 8.8% YoY during the same period that supported the overall passenger traffic growth.

Considering the slower global and Malaysia's GDP growth and slower growth of seats capacity by Malaysian carriers, MAVCOM forecasts that the 2018 passenger traffic will grow between 1.1% YoY and 2.0% YoY (Previous: 6.5% – 7.0% YoY), translating into passenger traffic of 100.3 million – 101.1 million (Previous: 105.6 million – 106.1 million) (see Figure 8). For 2019, demand will be supported by the expectation of a recovery in the commodity sector, which will provide the basis for private investment, as well as consumption. The potential shift of route networks to short- and medium-haul destinations from long-haul destinations may assist Malaysian carriers to keep airfares low to boost demand. Having said that, rising oil prices may limit airlines' ability to price airfares competitively and potentially weak consumer confidence and business sentiments may limit the upside to passenger traffic growth in 2019. Therefore, MAVCOM is forecasting for the passenger traffic to grow by 2.2% – 3.3% YoY in 2019, translating into passenger traffic of 102.5 million – 103.5 million.

**Figure 8: Passenger Traffic, 2011 – 2019F**



Source: MAVCOM Estimates, AOL Holders

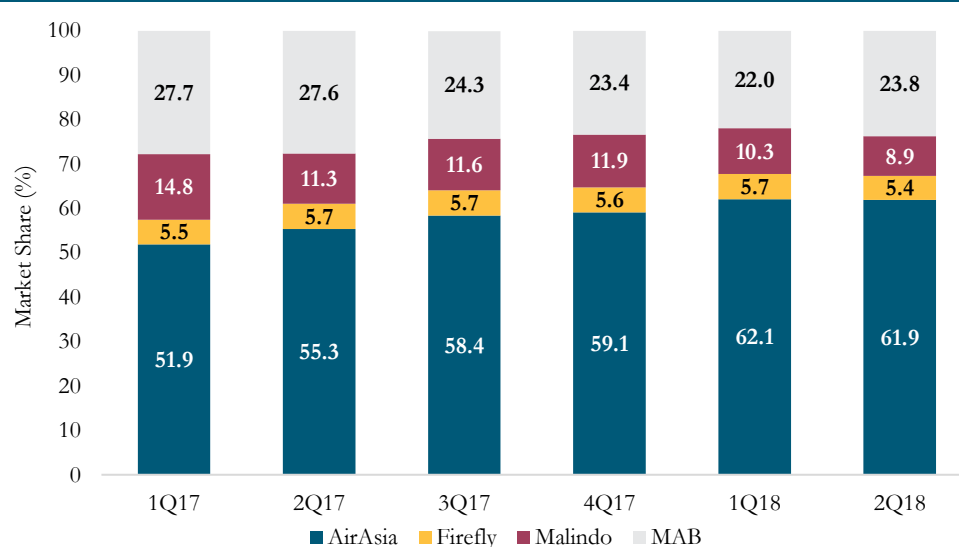
## SECTION 3: INDUSTRY STRUCTURE

### Scheduled Passenger Service Market

#### AirAsia Remains the Dominant Player for the Scheduled Passenger Service Market

For the domestic market, AirAsia held 61.9% share of total passenger traffic in 2Q18, which was up from the 55.3% it held in 2Q17 (see Figure 9). **Between 1Q17 and 2Q18, AirAsia had gained market share at the expense of other Malaysian carriers.** Malindo for example, lost 5.9 percentage points of market share between 1Q17 and 2Q18. The change in market shares for the domestic market is in line with the capacity rationalisation exercises undertaken by several other Malaysian carriers.

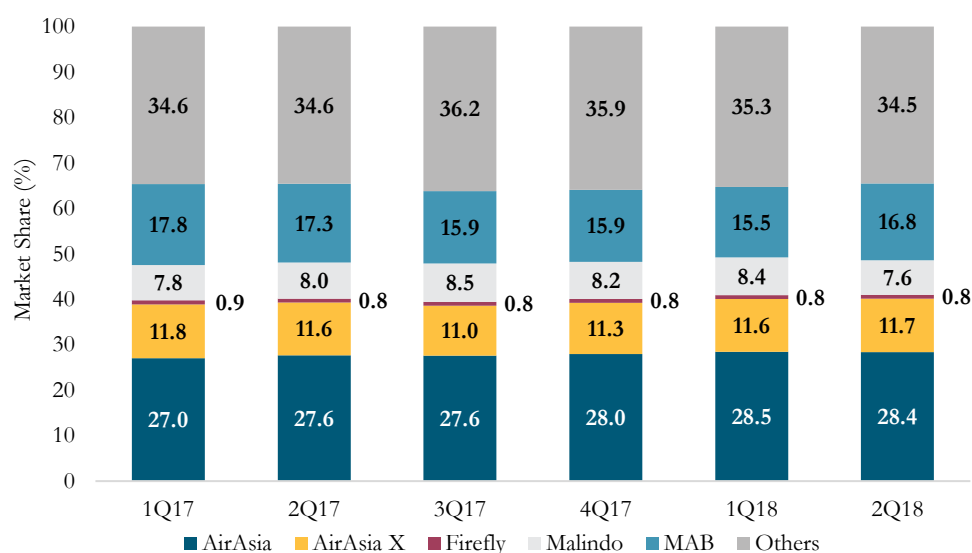
**Figure 9: Percentage of Airlines' Market Share for Domestic Routes by Passengers, 2017 – 2018**



Source: MAVCOM Analysis, AirportIS

For the international market, AirAsia remains the largest airline company with market shares of 28.5% and 28.4% in 1Q18 and 2Q18, respectively (2017: 27.6%) (see Figure 10). Between 1Q17 and 2Q18, MAB reported the biggest drop in market share by **1.0 percentage point**, while AirAsia increased its market share by **1.4 percentage points**. Market shares of foreign airlines remained relatively unchanged between 1Q17 and 2Q18.

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



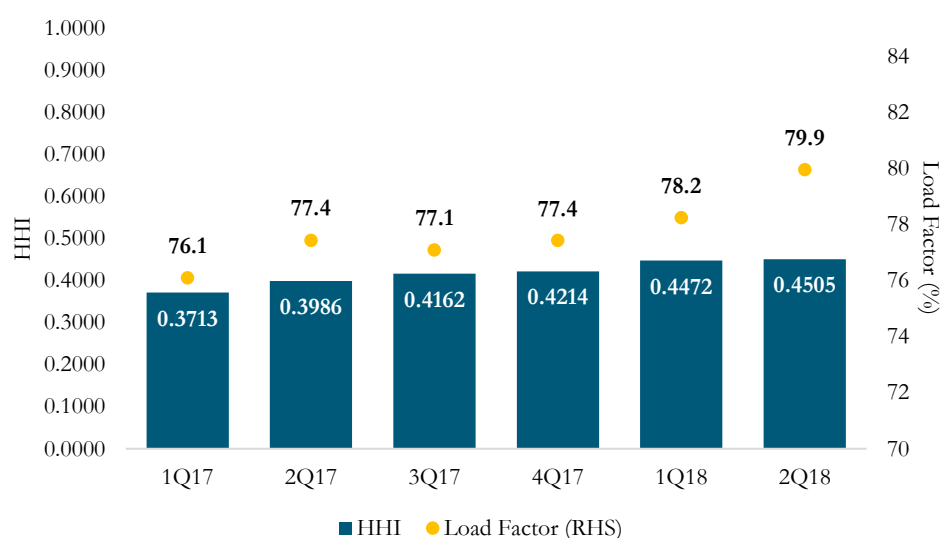
Source: MAVCOM Analysis, AirportIS



### Domestic and International Routes were More Concentrated in 1Q18 and 2Q18

The HHI for domestic routes had increased to 0.4505 in 2Q18 (2Q17: 0.3986) (see Figure 11). At the same time, load factor increased to 79.9% in 2Q18 (2Q17: 77.4%). The improvement in load factor of 3.9 percentage points was due to domestic capacity reduction by several Malaysian carriers. The five routes with highest load factors in 2Q18 were: JHB-TGG (87.5%), KCH-LGK (87.4%), KBR-KCH (87.4%), BKI-KBR (87.4%), and JHB-LGK (87.4%). Whereas, the five routes with the lowest load factors were KUA-KUL (69.7%), LGK-SZB (62.5%), IPH-JHB (60.1%), MKZ-PEN (60.0%), and KTE-SZB (59.6%).

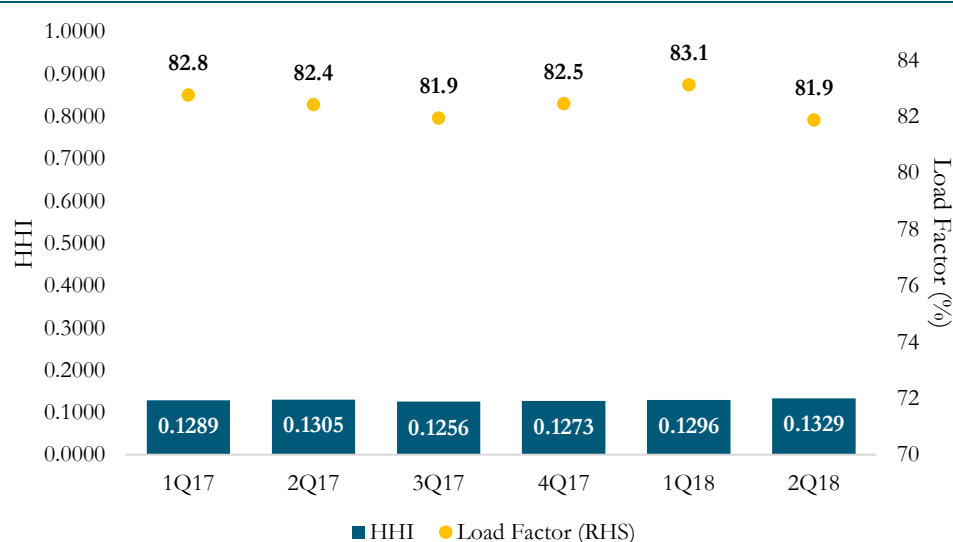
**Figure 11: Domestic Market Concentration Levels and Load Factors, 2017 – 2018**



Source: MAVCOM Analysis, AirportIS

As for the international market, its concentration levels were considerably lower compared to the domestic market between 1Q17 and 2Q18. In the first place, the international market is serviced by over 60 airlines as compared to only four in the domestic market. Additionally, unlike for the domestic market, the HHIs and load factors for the international market did not change significantly (see Figure 12). The average load factor of the international market for 2Q18 was 81.9% (2017: 81.0%). The five highest load factors in 2Q18 were for routes: KUL-KWL (96.6%), KUL-TRZ (89.1%), PEN-KNO (88.8%), BKI-CAN (88.4%), and BKI-CGK (87.2%). Whereas, the five routes with the lowest load factors were PEN-DOH (64.2%), KUL-JAI (62.7%) BKI-TSN (60.3%), PEN-NNG (60.3%), and IPH-KNO (58.5%).

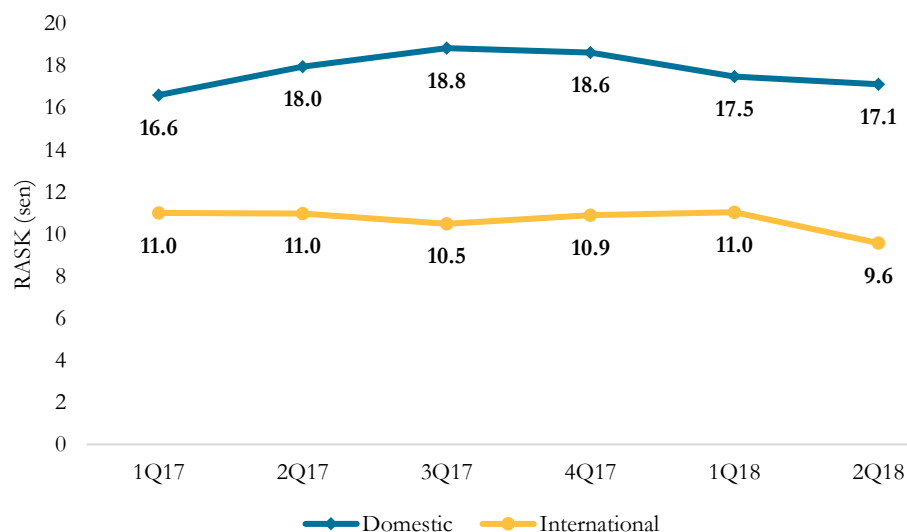
**Figure 12: International Market Concentration Levels and Load Factors, 2017 – 2018**



Source: MAVCOM Analysis, AirportIS

On average, the RASK for domestic routes is 66.7% higher than the RASK for international routes. This is in line with the concentration level as depicted by the HHIs which was explained earlier. This indicates that Malaysian carriers rely heavily on the domestic market to support their international operations. For the first six months of 2018, RASK for the domestic and international markets were lower than 2017, despite the higher jet fuel prices during the first six months of 2018 (see Figure 13). The average RASK for both markets in 2017 were 18.0 sen and 10.8 sen, respectively.

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



Source: MAVCOM Analysis, AirportIS

## Non-Scheduled Services Segments

### On-Demand Charter is the Least Concentrated Sub-Segment

The non-scheduled services segments (ASP holders) collectively reported RM798.6 million revenue for the first six months of 2018 with an average operating profit margin of 15.3% (see Table 6). The least profitable sub-segment was pleasure flying where companies recorded average operating profit margin of -55.6% (1H17: -52.1%). Companies within this sub-segment provide services such as joyrides and sightseeing flights around cities. This sub-segment collected the least revenue of RM2.1 million during the first six months of 2018 (1H17: RM2.3 million).

The most profitable sub-segment of the non-scheduled services segment is oil and gas with an average operating profit margin of 28.9% in 1H18 (1H17: 30.1%). The biggest sub-segment by revenue is on-demand charter that collected RM356.6 million revenue in 1H18 but reported a low operating profit margin of 4.4%. This is also the most crowded sub-segment of the non-scheduled services segment with 11 players, making it the least concentrated market with an HHI of 0.2332 (see Table 6).

Within each sub-segment (pleasure flying and on-demand cargo), the companies do not typically compete against each other due to the different type of customers that they serve. Despite this, the companies failed to show decent levels of profitability, which suggests that they may not be operating at efficient levels.

**Table 6: Summary of Non-Scheduled Services' Market Structure, 2018**

Type of Business	No. of Licence Holders	HHI	1H18 Revenue (RM million)	1H18 Operating Profit Margin (%)
Surveying, Observation & Patrol	1	1.0000	7.2	20.4
Pleasure Flying	2	0.8376	2.1	-55.6
On-demand Cargo	2	0.6897	49.0	-2.8
Aerial Work – cloud seeding, mapping	2	0.7987	41.4	21.3
Oil & Gas	4	0.8005	342.4	28.9
On-demand Charter	11	0.2332	356.6	4.4
<b>TOTAL</b>	<b>22</b>		<b>798.6</b>	<b>15.3</b>

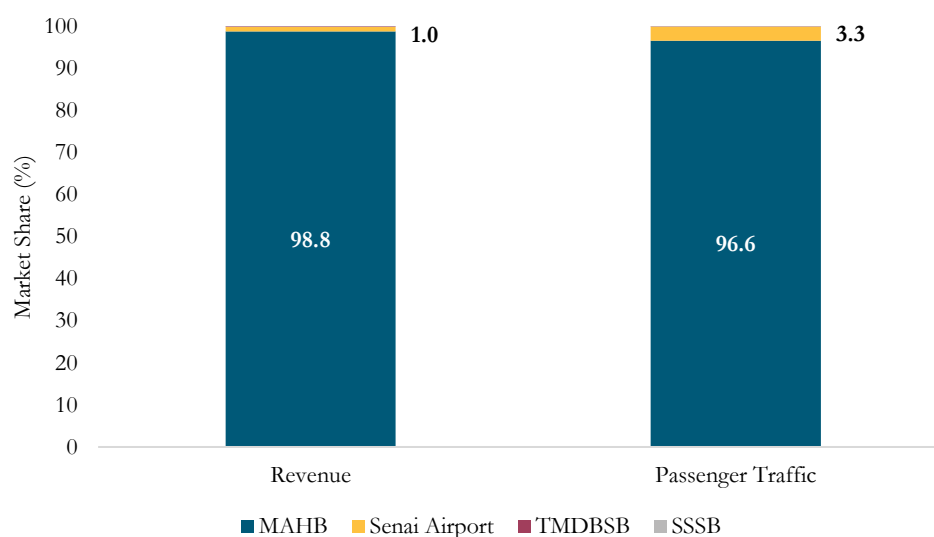
Source: MAVCOM

## Aerodrome Operators Segment

### MAHB Remains the Dominant Airport Operator in Malaysia

For the first six months of 2018, the aerodrome operating segment reported total revenue of RM3.6 billion, where 98.8% of the total revenue was made up by MAHB (see Figure 14). In this near monopoly industry structure, MAHB also handled 96.6% of total passenger traffic in Malaysia via 39 out of 42 airports that it operates. Naturally, this market has a very high HHI of 0.9765 (1H18: 0.9681).

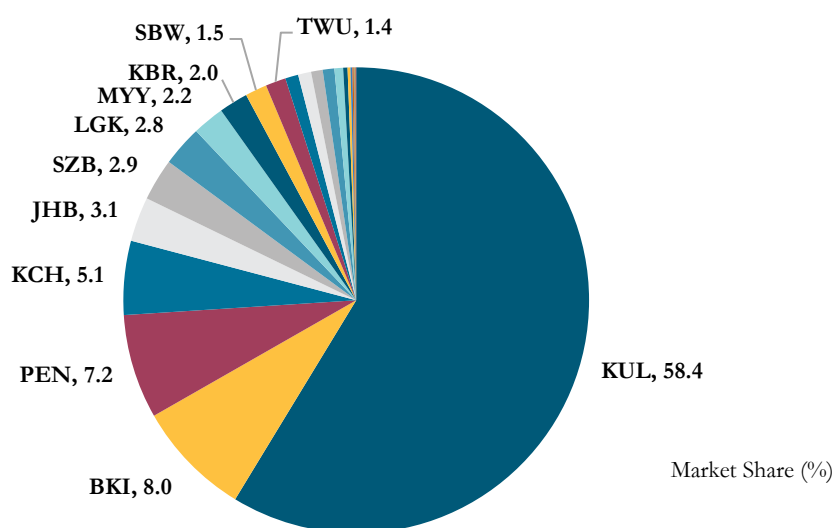
**Figure 14: Market Shares of the Aerodrome Operators' Segment, 2018**



Source: MAVCOM, AOL Holders

The provision of passenger air transport services in Malaysia is highly concentrated in KUL. KUL handles the largest number of passengers compared to other airports in the country. Based on the latest available data for 2017, KUL had 58.4% (2016: 57.5%) of the total passenger traffic for Malaysia (see Figure 15). BKI—the second biggest airport—only had 8.0% (2016: 7.9%) of the total passenger traffic in the country.

**Figure 15: Market Shares of Airports in Malaysia in Terms of Passenger Traffic, 2017**



Source: MAVCOM, AOL Holders

## Capacity Constraints Remain an Issue at Airports in Malaysia

Nine airports handled passenger traffic above their terminal design capacity in 2017 (see Table 7). SZB and LGK, for example, handled passenger traffic almost twice their terminal design capacities at 192.0% and 184.5%, respectively. Other airports that operated beyond their terminal design capacities are KBR (132.6%), LDU (127.7%), MZV (125.3%), KUL-T1 (113.2%), PEN (111.3%), MYY (109.4%), and KCH (101.9%). With the exception of KCH that was 98.4% utilised in 2016, KBR, LDU, MZV, PEN, and MYY were already operating at above their terminal design capacities from 2016.

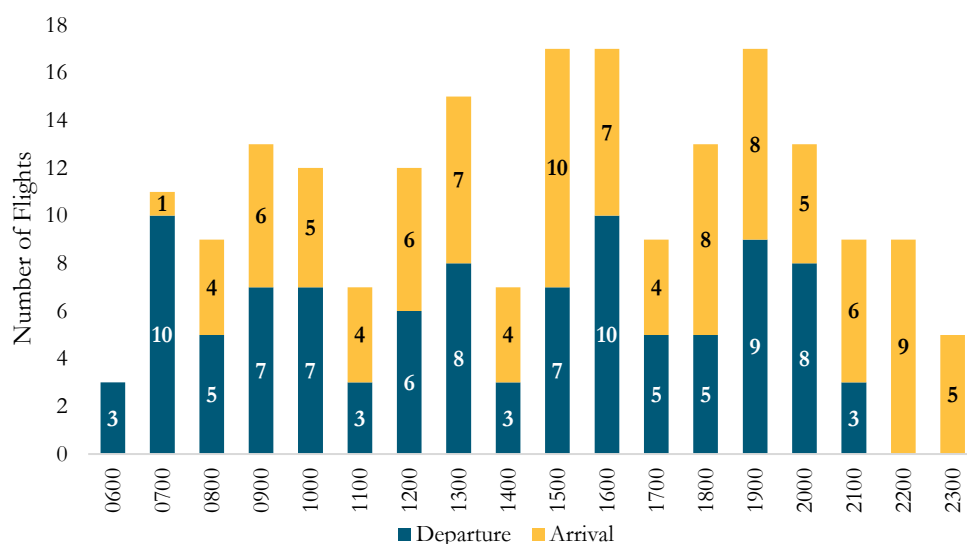
**Table 7: Terminal Design Capacity and Terminal Capacity Utilisation Rate of Airports in Malaysia, 2017**

No.	Airports	Terminal Design Capacity (mppa)	2017 Passengers Handled (mppa)	Terminal Utilisation Rate (%)
1	SZB	1.50	2.88	192.0
2	LGK	1.50	2.77	184.5
3	KBR	1.50	1.99	132.6
4	LDU	0.10	0.13	127.7
5	MZV	0.05	0.06	125.3
6	KUL-T1	25.00	28.29	113.2
7	PEN	6.50	7.23	111.3
8	MYY	2.00	2.19	109.4
9	KCH	5.00	5.10	101.9
11	TWU	1.50	1.37	91.7
12	KTE	0.10	0.09	90.0
13	BKI	9.00	8.01	89.0
10	JHB	3.50	3.07	87.7
16	BTU	1.00	0.85	85.0
14	KUL	70.00	58.55	83.7
15	SBW	1.80	1.50	83.2
17	KUL-T2	45.00	30.27	67.3
19	LMN	0.08	0.05	66.0
18	SDK	1.40	0.90	64.0
20	TGG	1.50	0.94	62.9
22	AOR	1.50	0.80	53.5
23	KUA	0.50	0.24	48.3
21	IPH	0.60	0.27	45.7
24	LBU	2.20	0.58	26.3
25	MKZ	0.50	0.06	12.4

Source: MAVCOM, AOL Holders

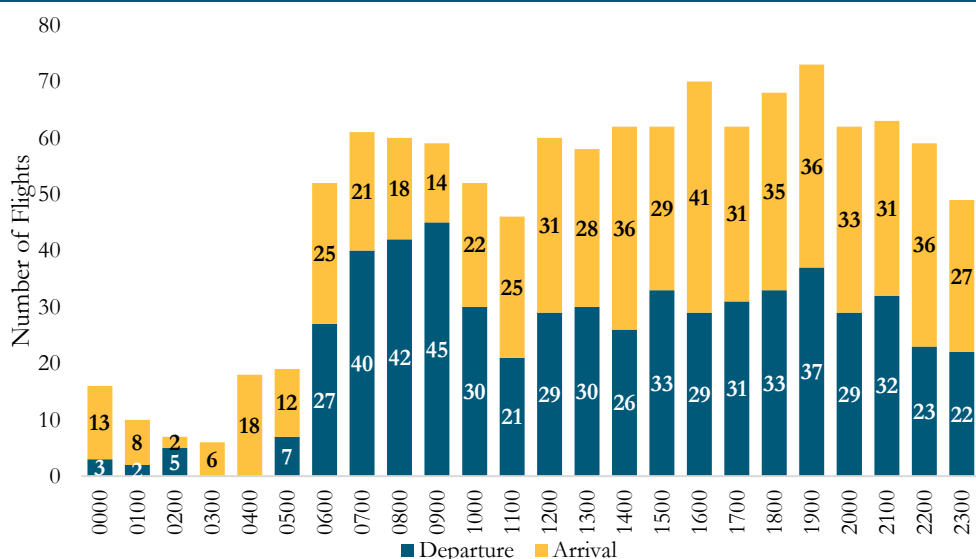
Airports may experience congestion during certain periods where many flights depart and arrive at the same time. For example, although SZB<sup>5</sup> may be the airport with the highest utilisation rate in Malaysia, most of the congestion occurred only during certain peak periods (see Figure 16). Similarly, the same observation was made at KUL<sup>6</sup> (see Figure 17). Furthermore, for KUL, the terminal capacity issue could potentially be solved by integrating the operations of KUL-T1 and KUL-T2 as several flights out of KUL-T1 could be reallocated to KUL-T2.

**Figure 16: Flight Departure and Arrival Distribution at SZB, 2017**



Source: MAVCOM Analysis, AirportIS

**Figure 17: Flight Departure and Arrival Distribution at KUL, 2017**



Source: MAVCOM Analysis, AirportIS

<sup>5</sup> Sample of flight departures and arrivals on 10 December 2017.

<sup>6</sup> Sample of flight departures and arrivals on 10 December 2017.



## Ground Handling Services Segment

### Ground Handling is the Least Concentrated Aviation Services Market

As at 30 June 2018, there are 30 GHL holders that operate within three ground handling services sub-segments. Based on the latest audited financial data **in 2017, the GHL holders reported RM1.0 billion in revenue**<sup>7</sup> (2016: RM991.0 million) (see Table 8), where 63.8% of the total revenue was contributed by the general ground handling sub-segment. In terms of profitability, the ground handling services segment reported an average operating profit margin<sup>8</sup> of 3.9% in 2017 (2016: 6.0%). **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 0.7022.

**Table 8: Market Structure of GHL Market, 2017**

Type of Business	No. of Licence Holders	HHI	2017 Revenue (RM million)	2017 Operating Profit Margin (%)
Catering	3	0.7022	359.0	5.3
General Ground Handling	19	0.4084	665.9	6.4
Refuelling	8	0.3880	18.4	-9.0
<b>TOTAL</b>	<b>30</b>		<b>1,043.3</b>	<b>3.9</b>

Source: MAVCOM

<sup>7</sup> The total revenue excludes revenue generated by the GHL holders that are also ASL, ASP, or AOL holders, and petroleum products retailers.

<sup>8</sup> The average operating profit margin excludes revenue generated by the GHL holders that are also ASL, ASP, or AOL holders, and petroleum products retailers.

## ATRs Awarded by MAVCOM as of 30 June 2018

For the first six months of 2018, ASL holders were awarded 111 additional ATRs (see Table 9), with AirAsia receiving the highest number of ATRs at 45, followed by Malindo at 33. During this period, there were 31 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 during the first six months of 2018.

**Table 9: Breakdown of ATRs Awarded, 2017 – 2018**

Airline	Total Domestic & International ATRs Awarded		Fail to Operate <sup>9</sup>		Surrendered <sup>10</sup>	
	2017	1H18	2017	1H18	2017	1H18
AirAsia	77	45	9	3	-	-
AirAsia X	15	15	2	3	3	-
Firefly	2	2	-	-	-	-
MAB	32	13	6	4	1	-
Malindo	81	33	33	21	1	-
Raya Airways	2	3	2	-	-	-
<b>TOTAL</b>	<b>209</b>	<b>111</b>	<b>52</b>	<b>31</b>	<b>5</b>	<b>-</b>

Source: MAVCOM

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

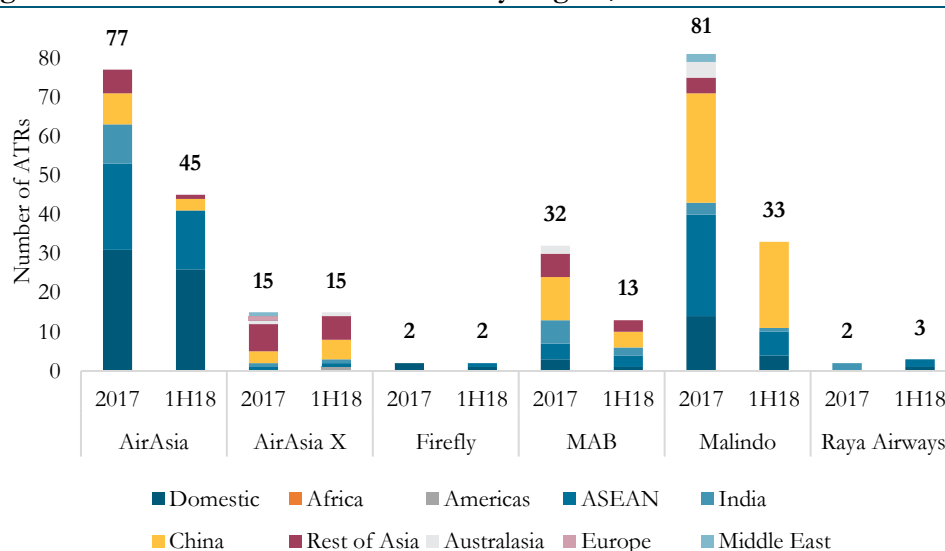
- their inability to secure the necessary approvals to operate the routes from other relevant authorities;
- the proposed route was later deemed as commercially unviable;
- the unavailability of aircraft due to changes in the aircraft delivery schedule; or
- the changes to the ASL holders' business strategy.

<sup>9</sup> ATRs revoked for failing to operate within six months from the ATRs' date of issuance.

<sup>10</sup> ATRs surrendered by the ASL holders.

For the first six months of 2018, 30.6% of the total ATRs were awarded for routes to China (2017: 23.9%), followed by 25.2% to ASEAN destinations (2017: 25.4%) (see Figure 18). During this period, the percentage of ATRs awarded for routes to India and Australasia went down significantly to 3.6% and 0.9%, respectively (2017: India (10.5%), Australasia (3.4%). This was due to the limited ATRs available as Malaysian carriers had almost fully utilised the ATRs provided under each ASAs (India: 98.5%, Australia: 90.4%). ASEAN and Asia remained as the areas of focus for Malaysian carriers in their ATR applications with 68.5% of the ATRs awarded for routes to those regions (2017: 70.8%).

**Figure 18: Breakdown of ATRs Awarded by Region, 2017 – 2018**

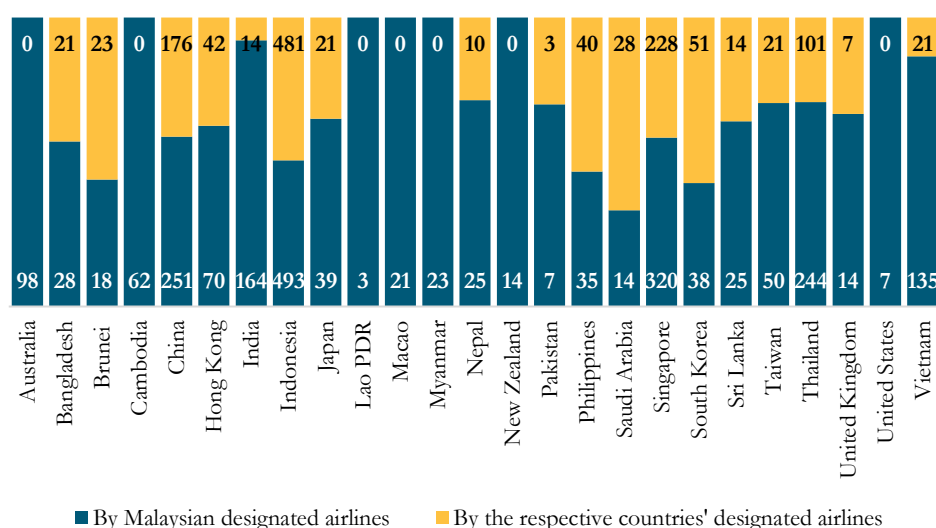


Source: MAVCOM

### Malaysian Carriers Utilise Third and Fourth Freedom Rights in 25 out of 106 ASAs

As at 30 June 2018, Malaysia has ASAs with 106 countries. However, **Malaysian carriers utilise<sup>11</sup> third and fourth freedom rights<sup>12</sup> in the respective ASAs for only 25 countries.** Among the 25 utilised ASAs, Malaysian carriers operated seven or more (at least daily) flights per week to 24 of the 25 countries – Laos was the only country where the Malaysian carriers did not operate daily flights. On the contrary, foreign carriers did not reciprocate in terms of the utilisation of their ASAs with Malaysia. For example, there were no carriers from Australia, Cambodia, Laos, Macao, Myanmar, New Zealand, and the US that operated flights into Malaysia (see Figure 19). There were also carriers from countries that Malaysian carriers do not fly into such as Ethiopia, Iran, Iraq, Kazakhstan, Mauritius, the Netherlands, and Turkey. The underlying reasons for the non-utilisation of the ASAs could potentially be due to unattractive yields and lack of connections to onward destinations.

**Figure 19: Utilisation of ASAs, 2018**



Source: MAVCOM

A Technical Paper on ASAs is available on MAVCOM's website to further elaborate on this subject (please see Technical Paper – Air Services Agreements: Air Traffic Rights and Airline Nationality Requirement).

<sup>11</sup> 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.

<sup>12</sup> 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.

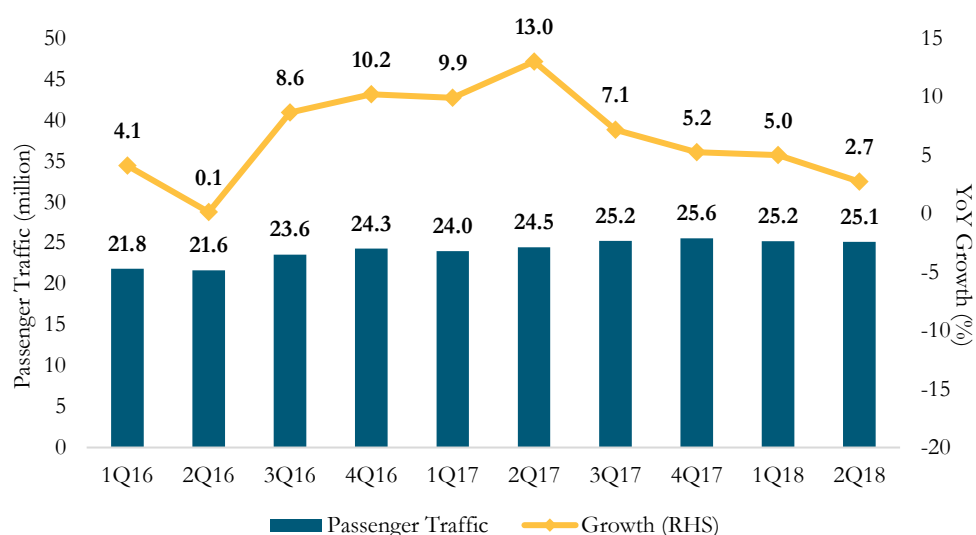
## SECTION 4: INDUSTRY PERFORMANCE

### Scheduled Services

#### Tapering Passenger Traffic Growth in 2018

Passenger traffic growth in 1Q18 and 2Q18 continued to taper at 5.0% YoY and 2.7% YoY, respectively (see Figure 20). This resulted in passenger traffic growth of 3.8% YoY for the first six months of 2018. The weaker passenger traffic growth during this period was attributable to the significant capacity cuts by several Malaysian carriers that reduced the number of seats in 1H18.

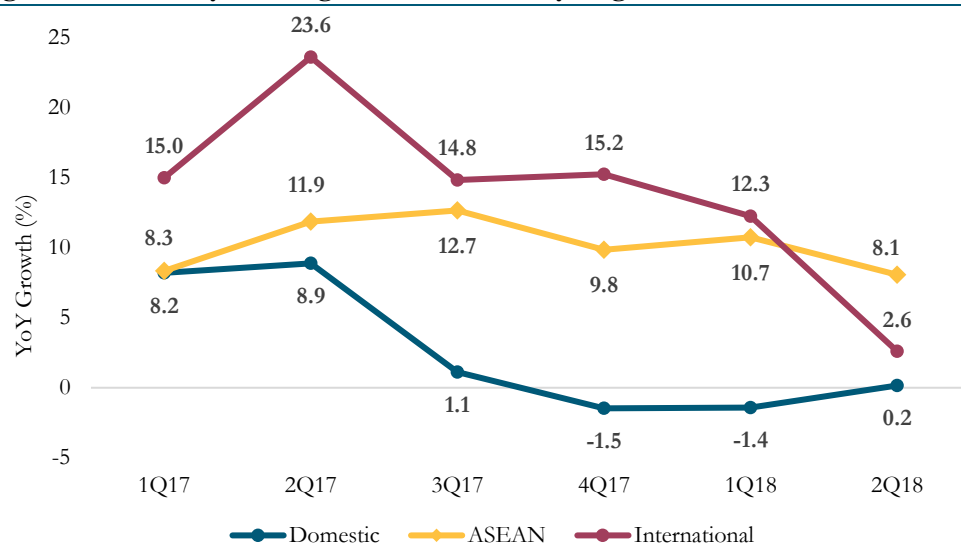
**Figure 20: Quarterly Passenger Traffic Trend, 2016 – 2018**



Source: MAVCOM Analysis, AOL Holders

The growth rate of international traffic declined significantly in 2Q18, where it only grew 2.6% YoY (1Q18: 12.3% YoY) (see Figure 21). This was due to the reduction in capacity by several Malaysian carriers to Australia and the UK.

**Figure 21: Quarterly Passenger Traffic Trend by Regions, 2017 – 2018**

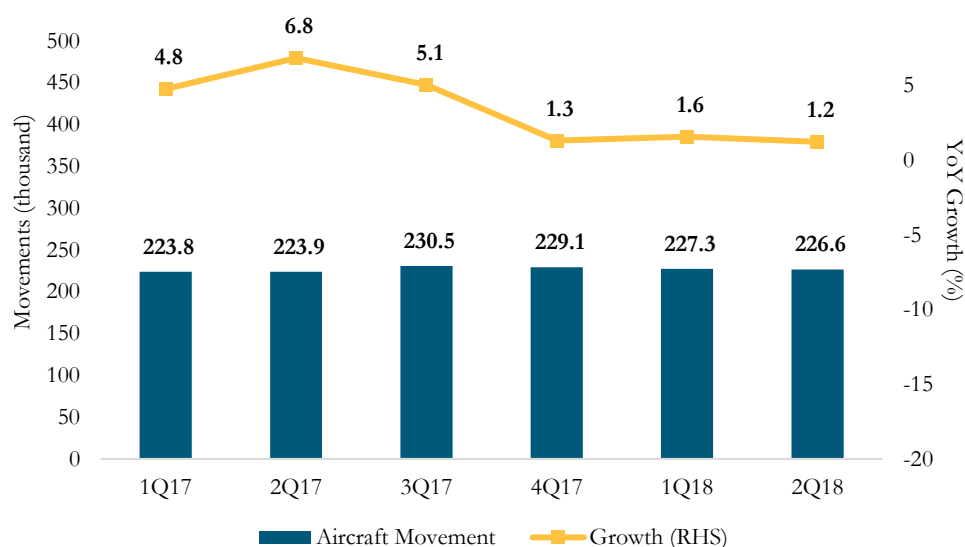


Source: MAVCOM Analysis, AOL Holders

## Slow Growth in Aircraft Movement and Cargo Traffic for 2Q18

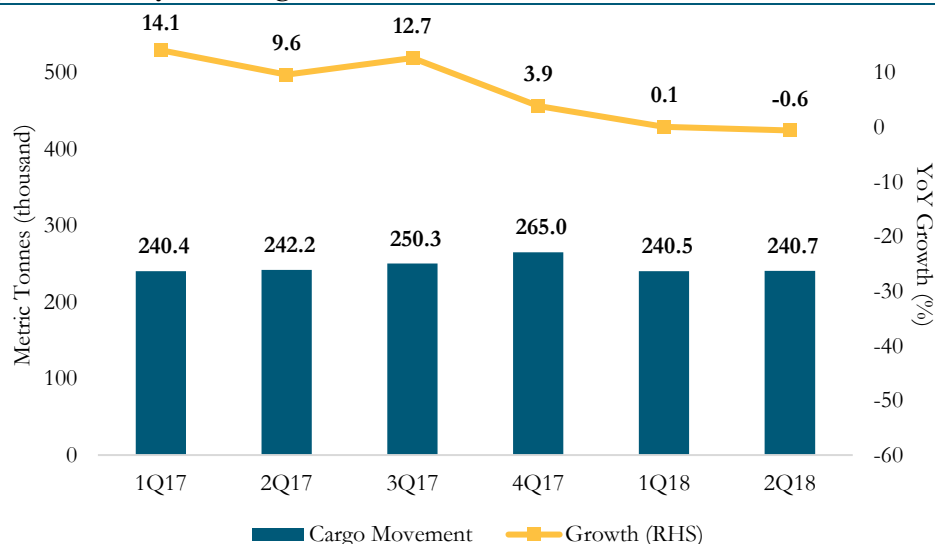
The cutting of capacity by airlines for the first six months of 2018 was also evident in the flat growth of aircraft movement in 1Q18 and 2Q18. During the two quarters, aircraft movement grew marginally by 1.6% YoY and 1.2% YoY (see Figure 22). At the same time, cargo traffic growth was less encouraging in 1Q18 (+0.1% YoY) and 2Q18 (-0.6% YoY) (see Figure 23). The cargo growth in 1Q18 and 2Q18 was attributable to weak freight and mail growth during this period.

**Figure 22: Malaysia's Aircraft Movements, 2017 – 2018**



Source: MAVCOM Analysis, AOL Holders

**Figure 23: Malaysia's Cargo Movements, 2017 – 2018**

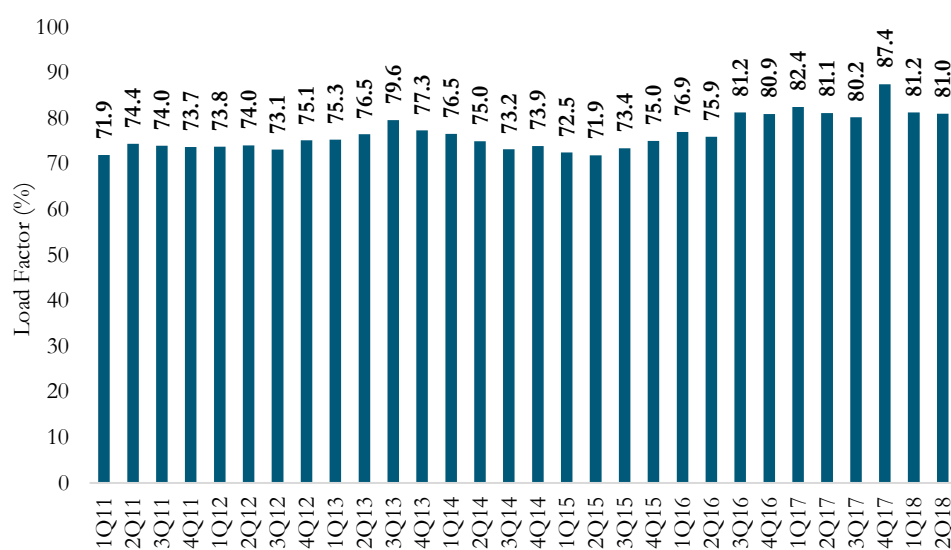


Source: MAVCOM Analysis, AOL Holders

### Lower Load Factors for Malaysian Carriers in 1Q18 and 2Q18

Malaysian carriers reported an average load factor of 81.2% and 81.0% in 1Q18 and 2Q18, respectively (see Figure 24). These were lower than the average load factor reported in 2017 (82.8%) due to a slightly weaker demand for air travel, especially in the domestic market. Generally, average load factors from 3Q16 onwards had been higher than the load factors reported before 3Q16. This was attributable to the rationalisation of capacity deployment by Malaysian carriers. Strong passenger demand also helped Malaysian carriers achieved high load factors over the past seven quarters since 3Q16.

**Figure 24: Malaysian Carriers' Load Factors Trend, 2011 – 2018**

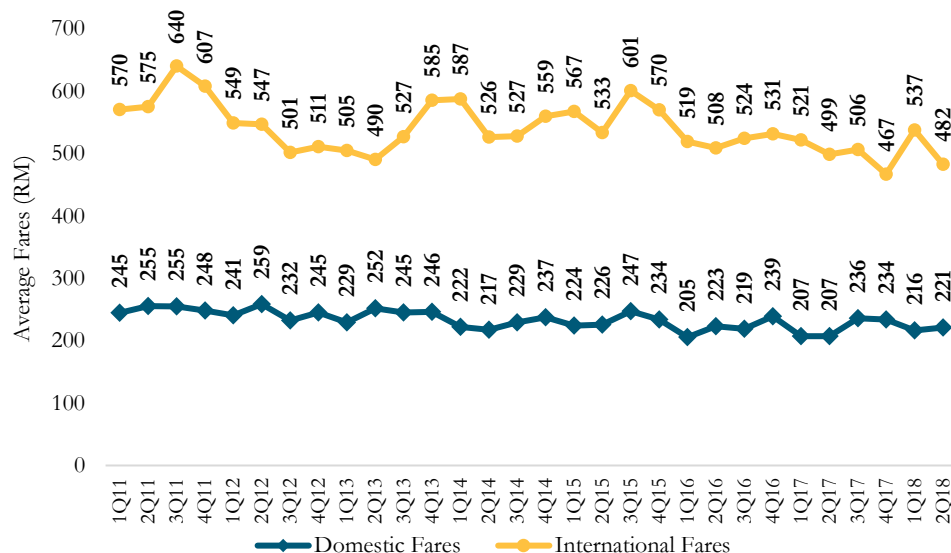


Source: MAVCOM Analysis, AirportIS



In 1H18 the average fares for Malaysian carriers moved sideways as airlines attempted to balance the pressure of rising jet fuel prices and the necessity to stimulate demand. For the domestic market, Malaysian carriers reported average fares of RM216 and RM221 for 1Q18 and 2Q18, respectively (2017: RM221). Meanwhile, for the international market, average fares in 1Q18 and 2Q18 were RM537 and RM482, respectively (2017: RM498) (see Figure 25).

**Figure 25: Malaysian Carriers' Average Fares Trend, 2011 – 2018**

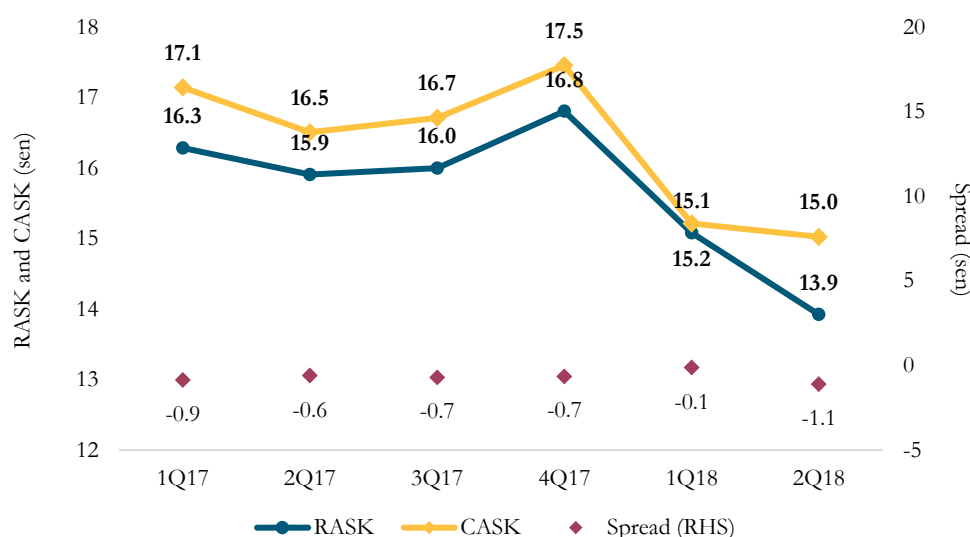


Source: MAVCOM Analysis, AirportIS

### The Spread between CASK and RASK Widened in 2Q18

RASK continued to drop in 1Q18 and 2Q18 as Malaysian carriers lowered their airfares to support demand for air travel, consistent with their abilities to maintain their average load factors at above 80.0%. At the same time, **the increase in jet fuel prices had resulted in a wider negative spread between RASK and CASK in 2Q18** (see Figure 26). RASK in 1Q18 and 2Q18 were 15.2 sen and 13.9 sen, respectively (2017: 16.5 sen), whereas CASK during the quarters were 15.1 sen and 15.0 sen, respectively (2017: 17.4 sen).

**Figure 26: Malaysian Carriers' RASK and CASK Trends, 2017 – 2018**

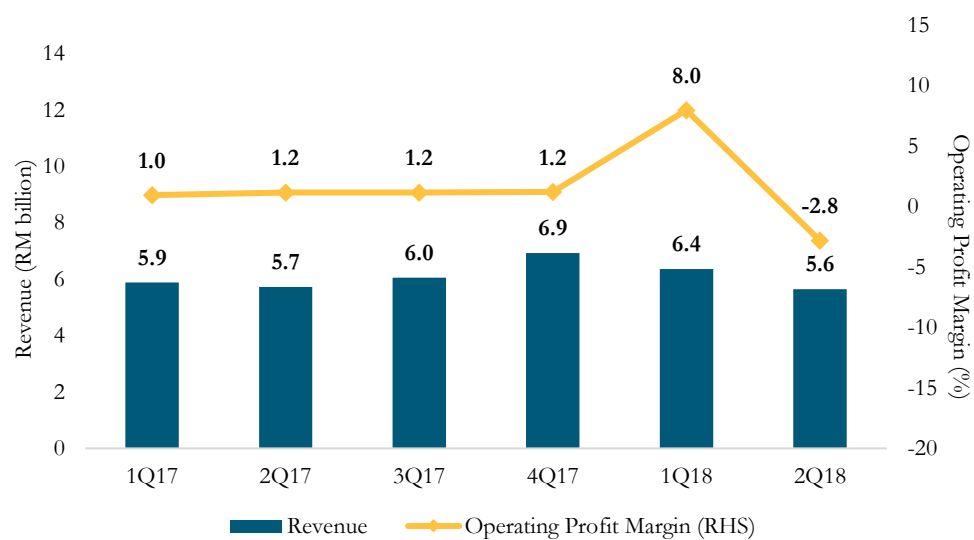


Source: MAVCOM Analysis, ASL Holders

### First Operating Losses Over the Past Six Quarters

Revenue for Malaysian carriers increased 3.5% YoY for the first six months of 2018 (2017: 19.8% YoY). The slower revenue growth was due to the capacity reduction by several Malaysian carriers during this period. **The segment reported RM5.6 billion revenue in 2Q18, which was the lowest revenue registered by Malaysian carriers since 1Q17** (see Figure 27). Malaysian carriers also recorded operating losses in 2Q18, that was mainly attributable to rising jet fuel prices.

**Figure 27: Revenue and Operating Profit Margin of Malaysian Carriers, 2017 – 2018**



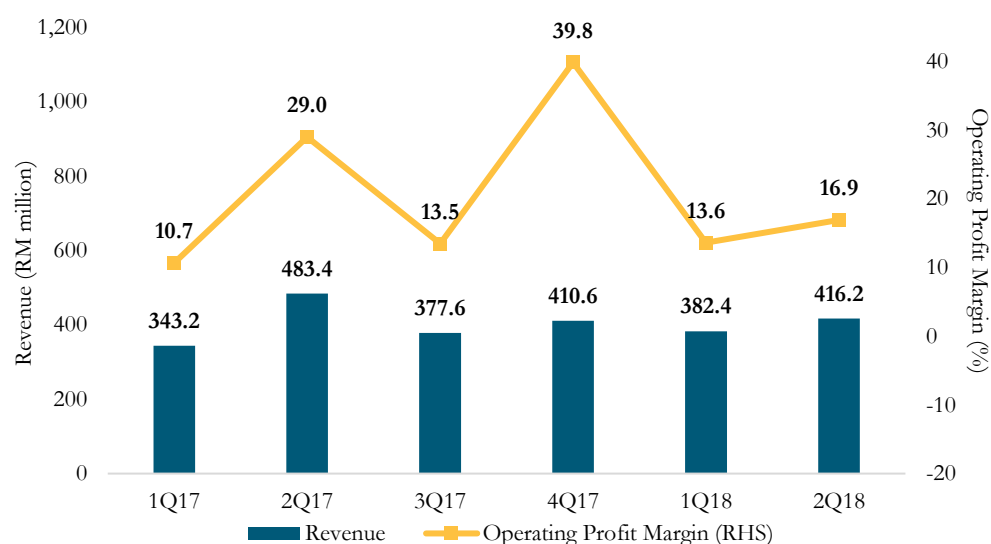
Source: MAVCOM Analysis, ASL Holders

## Non-Scheduled Services

### Improved Average Operating Profit Margin in 2Q18

Revenue for the non-scheduled services segment decreased by 3.4% YoY for the first six months of 2018 (2017: -8.2% YoY) due to the **higher revenue collected by aerial work, on-demand cargo, on-demand charter, and surveying, observation and patrol sub-segments**. The companies within these sub-segments were awarded more contracts during the first six months of 2018 compared to the same period in 2017. This resulted in **the segment reporting an average operating profit margin of 13.6% and 16.9% in 1Q18 and 2Q18, respectively** (see Figure 28). The higher revenue and operating profit margins in 2Q17 and 4Q17 was attributable to compensation payments received by two ASP holders from the termination of contracts by its respective clients that were booked during the two quarters.

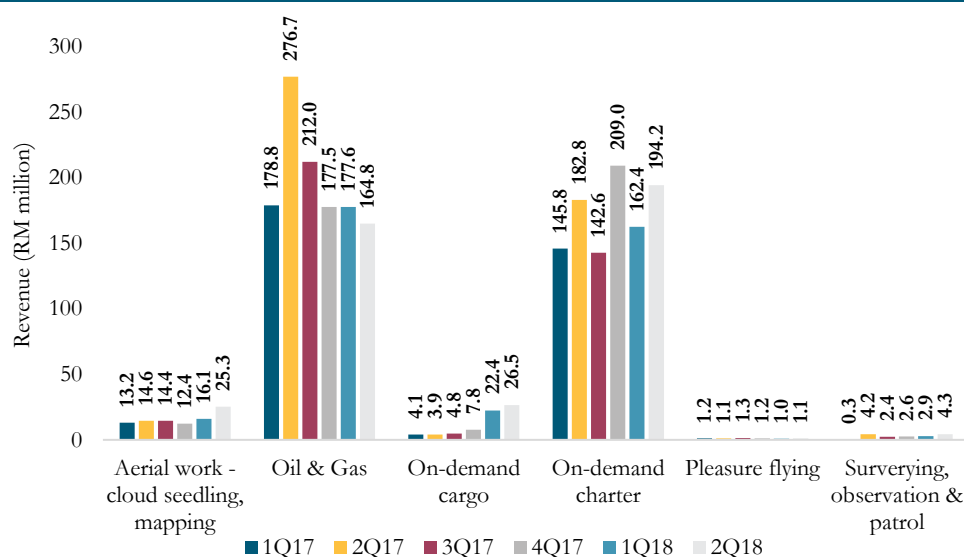
**Figure 28: Revenue and Operating Profit Margin of ASP Holders, 2017 – 2018**



Source: MAVCOM Analysis, ASP Holders

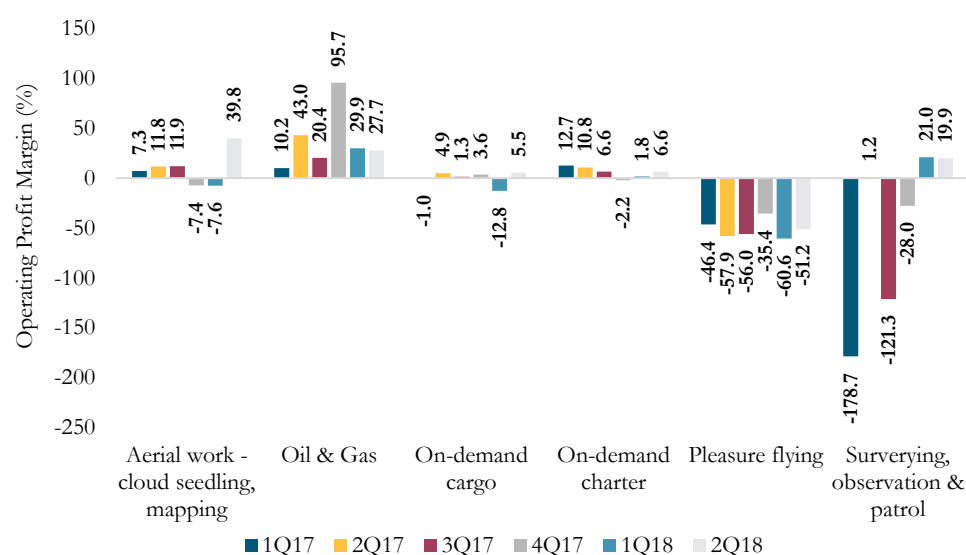
Financial performance of each sub-segment of the non-scheduled services segment between 1Q17 and 2Q18 is illustrated in Figures 29 and 30. The aerial work, on-demand cargo, and surveying, observation and patrol sub-segments reported the highest revenues since 1Q17 along with positive operating profit margins. **The pleasure flying sub-segment remains the only sub-segment that had not generated any profit between 1Q17 and 2Q18, due to weak demand.**

**Figure 29: Revenue of ASP Holders by Sub-Segment, 2017 – 2018**



Source: MAVCOM Analysis, ASP Holders

**Figure 30: Operating Profit Margin of ASP Holders by Sub-Segment, 2017 – 2018**



Source: MAVCOM Analysis, ASP Holders

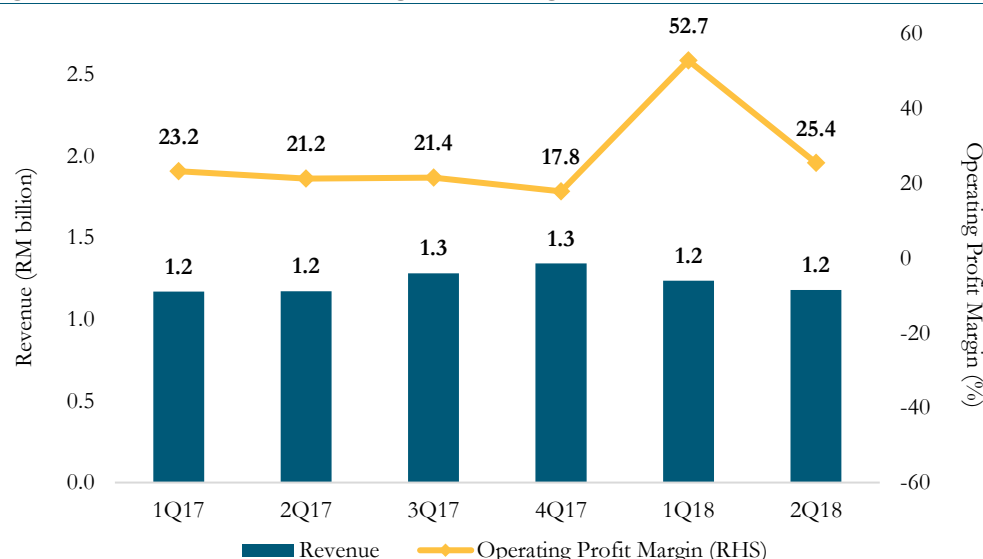
## Aerodrome Operations

### Flat Revenue Growth for Aerodrome Operators in 1Q18 and 2Q18

Aerodrome operators reported revenue growth of 3.2% YoY for the first six months of 2018 (2017: 10.4% YoY). **Revenue growth was also flat in 1Q18 and 2Q18 compared to the corresponding quarters in the previous year** (see Figure 31). Weak growth of passenger traffic and aircraft movement was attributable to the flat revenue growth. The aggregate financial performance 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 operators in the country. In 1Q18, the operating profit margin was 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%.

MAHB's revenue from its international operations contributed between RM223.0 million and RM315.6 million every quarter from 1Q17 to 2Q18. Also, its international operations have lower operating profit margins compared to its Malaysian operations. For example, excluding its international operations, the revenue for the segment in 2Q18 will be RM0.9 billion and operating profit margin will be 17.9%.

**Figure 31: Revenue and Operating Profit Margin of AOL Holders, 2017 – 2018**



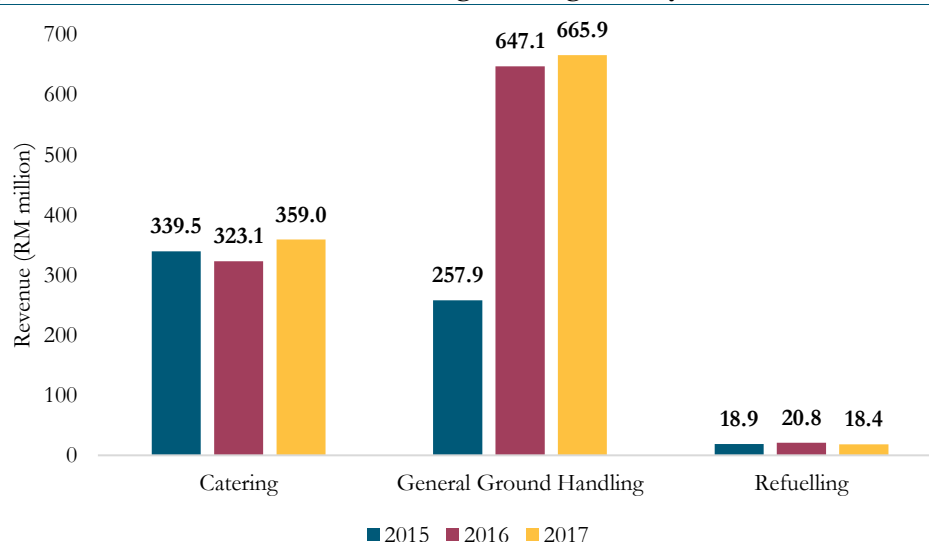
Source: MAVCOM Analysis, AOL Holders

## Profitability of Ground Handling Service Providers

### General Ground Handling Remains the Biggest Sub-segment in Terms of Revenue in 2017

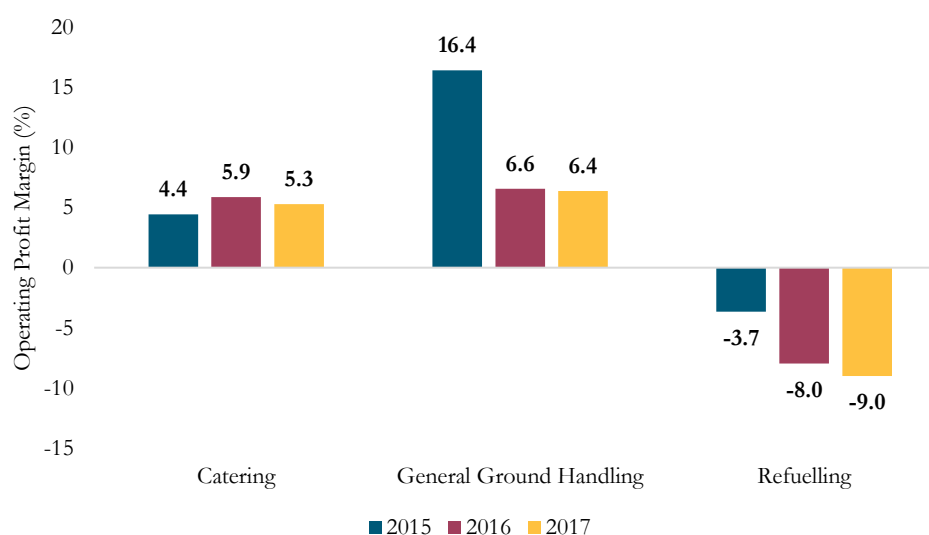
Only catering and general ground handling sub-segments reported higher revenue in 2017, whereas the refuelling sub-segment reported lower revenue in 2017 (see Figure 32). The revenue for the catering sub-segment increased 11.1% YoY to RM359.0 million (2016: RM323.1 million) due to higher volume of in-flight meal supplied in 2017. For the general ground handling sub-segment, revenue went up by 2.9% YoY to RM665.9 million (2016: RM647.1 million) mainly contributed by the revenue generated by new GHL holders that commenced operations in late-2016.

**Figure 32: Revenue for Ground Handling Sub-Segment by Business, 2015 – 2017**



Source: MAVCOM, GHL Holders

**Figure 33: Operating Profit Margin for Ground Handling Sub-Segments, 2015 – 2017**



Source: MAVCOM, GHL Holders

## SECTION 5: GENERAL GROUND HANDLING MARKET

### Types of General Ground Handling Services

General ground handling is one of the three sub-segments of the ground handling services market. The other two sub-segments are catering and refuelling. **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

At any given airport, general ground handling activities can be carried out by:

- airlines, by self-handling;
- airports, where the airlines operate via the airports' own general ground-handling arm; or
- third-party general ground handling service providers.

In any airport, general ground handling services can be provided by at least one or all three types of service providers listed above. The IATA **estimated that about 50% of the global general ground handling activities are conducted by third-party general ground handling service providers.** In Malaysia, SATSSB is the only airport operator that provide general ground handling services to airlines that fly into its airport – JHB. In other airports in Malaysia, the general ground handling services are provided via airlines' self-handling and third-party general ground handling service providers.



### Three Types of General Ground Handling Service Providers

General ground handlers can be grouped into three types of service providers, as follows:

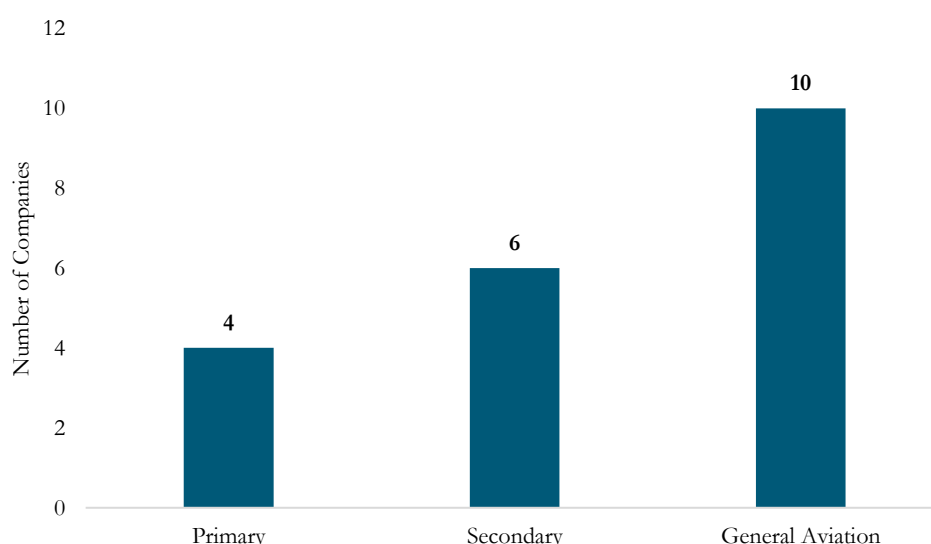
- Primary providers of general ground handling services
- Secondary providers of general handling services
- General ground handlers for general aviation operations

**Primary providers of general ground handling services mainly serve all the major airlines operating in Malaysia.** Most of these general ground handling service providers are subsidiaries or business units of several Malaysian carriers. These general handlers typically operate in at least six airports to up to 17 airports to support the operations of their parent-airlines except for one general ground handler that primarily serves foreign carriers. As at 30 June 2018, there are four GHIL holders that are primary general ground handling service providers (see Figure 34).

**Secondary providers of general ground handling services are general ground handlers that only provide selected services listed in Table 10.** They can be engaged directly by the airlines for the selected services that they offer or indirectly by the primary general ground handlers. As at 30 June 2018, there are six secondary general ground handling service providers (see Figure 34).

Finally, **there are ten general ground handling companies that provide services to general aviation operations** as at 30 June 2018 (see Figure 34). General aviation refers to other air transportation services that are being carried out for remuneration or hire – business jets operations, aerial photography, medical evacuation, recreational aviation, etc.

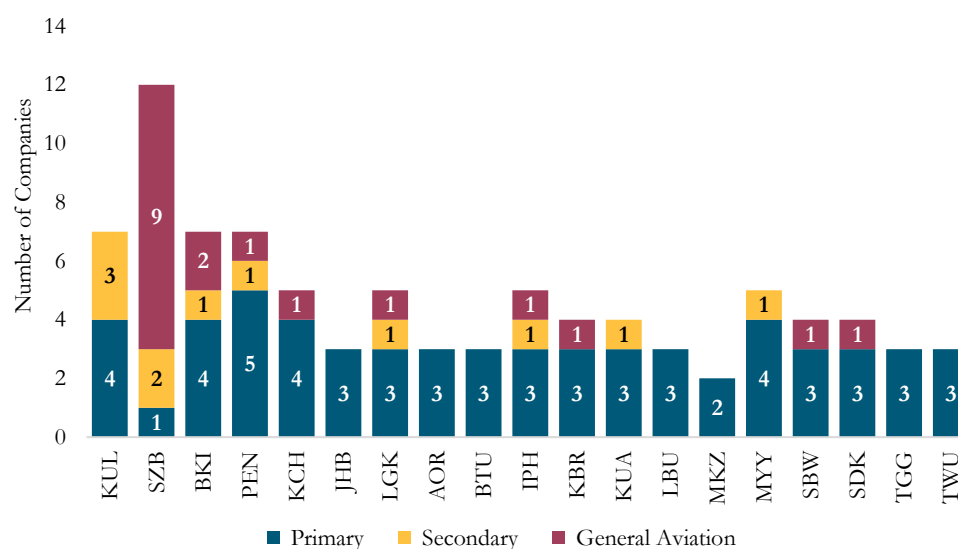
**Figure 34: Number of General Ground Handlers by Type, 2018**



Source: MAVCOM

The operations of general ground handlers are spread out across airports in Malaysia. The distribution of the general ground handlers across airports in Malaysia is illustrated in Figure 35<sup>13,14</sup>. Although the number of general ground handlers at some airports may be high (more than 10 companies), most of these companies may be focusing in providing services to general aviation operations. For example, nine out of 12 general ground handlers operating at SZB, provide services to general aviation operations. This is also a testament to the level of general aviation activities at SZB which has the highest number of general ground handling companies catering to general aviation in airports in Malaysia.

**Figure 35: Distribution of General Ground Handlers Across Airports in Malaysia, 2018**



Source: MAVCOM

### General Ground Handlers in Malaysia are Domestic Market-Centric

Global leaders in the general ground handling market such as Dnata, Menzies, and SATS have operations in more than one country (see Table 11). Compared to these companies, except for one general ground handler, **Malaysian general ground handlers do not operate anywhere outside Malaysia**. This is expected considering most of these companies were in-house ground handling arms of Malaysian carriers. Naturally, the Malaysian general ground handlers rely heavily on the airlines operating in Malaysia.

**Table 11: Global Ground Handling Companies and Number of Countries in Operations, 2017**

No.	Ground Handling Companies	Number of Countries in Operations
1	Dnata	84
2	Menzies	34
3	SATS	7

Source: MAVCOM, Dnata, Menzies, SATS

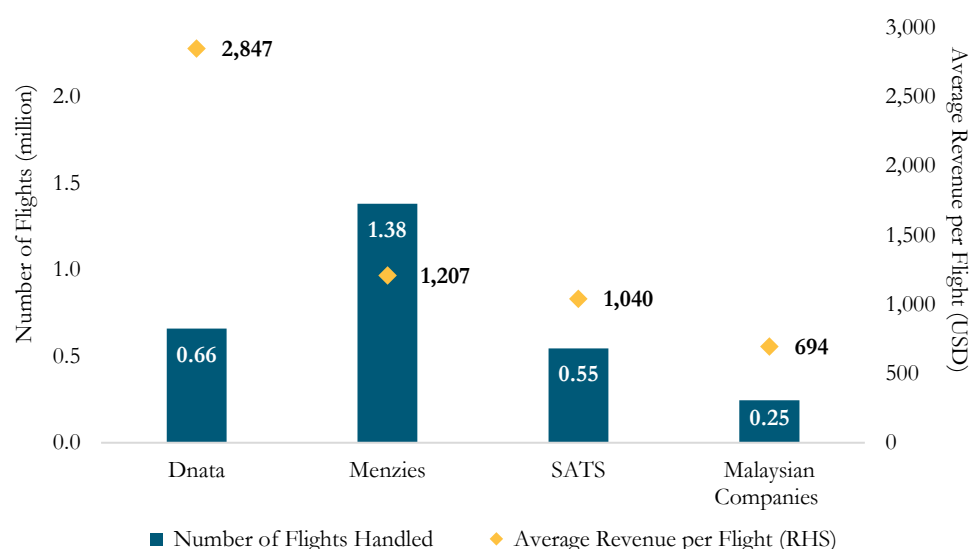
<sup>13</sup> The chart only shows airports served by the GHL holders. Ground handling services at other airports are fulfilled via self-handling by the airlines themselves.

<sup>14</sup> The numbers in the chart include the GHL holders that are also ASL, ASP, or AOL holders, and petroleum products retailers.

## General Ground Handling Market is Highly Competitive

The level of competition is high relative to the number of aircraft movements in the country. For example, the US reported 15.6 million aircraft movements in 2017 and these are being served by 45 (includes catering and refuelling companies) ground handling companies where our as opposed to 0.9 million aircraft movements in Malaysia serves by 19 general ground handling companies. As a result, **average revenue per flight for Malaysian general ground handlers were suppressed (see Figure 36) as they, on average, only able to generate two-thirds of what SATS generated per flight in 2017.**

**Figure 36: Number of Flights and Average Revenue per Flight, 2017**



Source: MAVCOM Estimates, Dnata, Menzies, SATS, AeroDarat, GTR, Pos Aviation

## 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	2.6
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

Source: DOS, Thomson Reuters

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

Year	YoY Growth (%)
2010	10.6
2011	5.3
2012	5.5
2013	4.7
2014	6.0
2015	5.0
2016	4.2
2017	5.9
2018F	4.8
2019F	4.9

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

Source: DOS, MOTAC, Thomson Reuters

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

Quarter	Exports Malaysia	Imports Malaysia	YoY Growth (%)		ASEAN Exports	ASEAN Imports
			Global Exports	Global Imports		
1Q17	9.8	12.9	10.9	9.7	6.5	7.5
2Q17	9.6	10.7	7.7	6.6	7.6	8.9
3Q17	11.8	13.4	11.1	9.6	7.1	8.1
4Q17	12.4	14.4	13.2	13.5	6.7	7.9
1Q18	3.7	-2.0	15.4	15.3	6.1	7.3
2Q18	2.0	2.1	14.0	13.6	5.5	6.7

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	54	66	4.49
2Q17	50	63	4.43
3Q17	46	59	4.30
4Q17	51	69	4.24
1Q18	60	79	4.05
2Q18	63	83	3.86
2Q18	74	89	4.04

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	111.3	17.1
2014	127.3	14.3
2015	124.1	-2.4
2016	119.2	-4.0
2017	130.7	9.6
2018F	135.1	3.3
2019F	133.9	-0.8

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
2018F	76.7	3.2
2019F	78.7	2.6

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	99.1	8.1
2018F	100.3 – 101.1	1.1 – 2.0
2019F	102.5 – 103.5	2.2 – 3.3

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	51.9	5.5	14.8	27.7
2Q17	55.3	5.7	11.3	27.6
3Q17	58.4	5.7	11.6	24.3
4Q17	59.1	5.6	11.9	23.4
1Q18	62.1	5.7	10.3	22.0
2Q18	61.9	5.4	8.9	23.8

Source: MAVCOM Analysis, AirportIS

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

Quarter	AirAsia	AirAsia X	Firefly	Malindo	MAB	Others
1Q17	27.0	11.8	0.9	7.8	17.8	34.6
2Q17	27.6	11.6	0.8	8.0	17.3	34.6
3Q17	27.6	11.0	0.8	8.5	15.9	36.2
4Q17	28.0	11.3	0.8	8.2	15.9	35.9
1Q18	28.5	11.6	0.8	8.4	15.5	35.3
2Q18	28.4	11.7	0.8	7.6	16.8	34.5

Source: MAVCOM Analysis, AirportIS

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

Quarter	HHI	Load Factor (%)
1Q17	0.3713	76.1
2Q17	0.3986	77.4
3Q17	0.4162	77.1
4Q17	0.4214	77.4
1Q18	0.4472	78.2
2Q18	0.4505	79.9

Source: MAVCOM Analysis, AirportIS

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

Quarter	HHI	Load Factor (%)
1Q17	0.1289	82.8
2Q17	0.1305	82.4
3Q17	0.1256	81.9
4Q17	0.1273	82.5
1Q18	0.1296	83.1
2Q18	0.1329	81.9

Source: MAVCOM Analysis, AirportIS

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

Quarter	RASK (sen)	
	Domestic	International
1Q17	16.6	11.0
2Q17	18.0	11.0
3Q17	18.8	10.5
4Q17	18.6	10.9
1Q18	17.5	11.0
2Q18	17.1	9.6

Source: MAVCOM Analysis, AirportIS

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

Company	Market Share (%)	
	Revenue	Passenger Traffic
MAHB	98.8	96.6
Senai Airport	1.0	3.3
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, 2017**

Airport	Passengers Handled (mppa)
KUL	58.6
BKI	8.0
PEN	7.2
KCH	5.1
JHB	3.1
SZB	2.9
LGK	2.8
MYY	2.2
KBR	2.0
SBW	1.5
TWU	1.4
SDK	0.9
TGG	0.9
BTU	0.8
AOR	0.8
LBU	0.6
IPH	0.3
KUA	0.2
LDU	0.1
KTE	0.1
MZV	0.1
MKZ	0.1
LMN	0.1

*Source: MAVCOM, AOL holders*



Table A16: Flight Departure and Arrival Distribution at SZB, 2017

Time	Number of Flights	
	Departure	Arrival
0600	3	-
0700	10	1
0800	5	4
0900	7	6
1000	7	5
1100	3	4
1200	6	6
1300	8	7
1400	3	4
1500	7	10
1600	10	7
1700	5	4
1800	5	8
1900	9	8
2000	8	5
2100	3	6
2200	-	9
2300	-	5

Source: MAVCOM Analysis, AirportIS

Table A17: Flight Departure and Arrival Distribution at KUL, 2017

Time	Number of Flights	
	Departure	Arrival
0000	3	13
0100	2	8
0200	5	2
0300	-	6
0400	-	18
0500	7	12
0600	27	25
0700	40	21
0800	42	18
0900	45	14
1000	30	22
1100	21	25
1200	29	31
1300	30	28
1400	26	36
1500	33	29
1600	29	41
1700	31	31
1800	33	35
1900	37	36
2000	29	33
2100	32	31
2200	23	36
2300	22	27

Source: MAVCOM Analysis, AirportIS

Table A18: Breakdown of ATRs Awarded by Region, 2017 – 2018

Region	Airasia		Airasia X		Firefly		MAB		Malindo		Raya Airways		Total	
	2017	1H18	2017	1H18	2017	1H18	2017	1H18	2017	1H18	2017	1H18	2017	1H18
Domestic	31	26	-	-	2	1	3	1	14	4	-	1	50	33
Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Americas	-	-	-	1	-	-	-	-	-	-	-	-	-	1
ASEAN	22	15	1	1	-	1	4	3	26	6	-	2	53	28
India	10	-	1	1	-	-	6	2	3	1	2	-	22	4
China	8	3	3	5	-	-	11	4	28	22	-	-	50	34
Rest of Asia	6	1	7	6	-	-	6	3	4	-	-	-	23	10
Australia	-	-	1	1	-	-	2	-	4	-	-	-	7	1
Europe	-	-	1	-	-	-	-	-	-	-	-	-	1	0
Middle East	-	-	1	-	-	-	-	-	2	-	-	-	3	0
Total	77	45	15	15	2	2	32	13	81	33	2	3	209	111

Source: MAVCOM

Table A19: Utilisation of ASAs, 2018

Country	Number of Flights Per Week	
	By Malaysian designated airlines	By respective domestic designated airlines
Australia	98	0
Bangladesh	28	21
Brunei	18	23
Cambodia	62	0
China	251	176
Hong Kong	70	42
India	164	14
Indonesia	493	481
Japan	39	21
Lao PDR	3	0
Macao	21	0
Myanmar	23	0
Nepal	25	10
New Zealand	14	0
Pakistan	7	3
Philippines	35	40
Saudi Arabia	14	28
Singapore	320	228
South Korea	38	51
Sri Lanka	25	14
Taiwan	50	21
Thailand	244	101
United Kingdom	14	7
United States	7	0
Vietnam	135	21

Source: MAVCOM

Table A20: 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	25.2	5.0
2Q18	25.1	2.7

Source: MAVCOM Analysis, AOL holders

Table A21: 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	-1.4	10.7	12.3
2Q18	0.2	8.1	2.6

Source: MAVCOM Analysis, AOL holders

Table A22: Malaysia's Aircraft Movements, 2017 – 2018

Quarter	Aircraft Movement (thousand)	YoY Growth (%)
1Q17	223.8	4.8
2Q17	223.9	6.8
3Q17	230.5	5.1
4Q17	229.1	1.3
1Q18	227.3	1.6
2Q18	226.6	1.2

Source: MAVCOM Analysis, AOL Holders

Table A23: Malaysia's Cargo Movements, 2017 – 2018

Quarter	Cargo Movement (thousand metric tonnes)	YoY Growth (%)
1Q17	240.4	14.1
2Q17	242.2	9.6
3Q17	250.3	12.7
4Q17	265.0	3.9
1Q18	240.5	0.1
2Q18	240.7	-0.6

Source: MAVCOM Analysis, AOL Holders

Table A24: 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	81.2
2Q18	81.0

Source: MAVCOM Analysis, AirportIS

Table A25: 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	216	537
2Q18	221	482

Source: MAVCOM Analysis, AirportIS

**Table A26: 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	16.8	17.5	-0.7
1Q18	15.1	15.2	-0.1
2Q18	13.9	15.0	-1.1

Source: MAVCOM Analysis, ASL Holders

**Table A27: 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

Source: MAVCOM Analysis, ASL Holders

**Table A28: 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	382.4	13.6
2Q18	416.2	16.9

Source: MAVCOM Analysis, ASL Holders

**Table A29: 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, observatopn & 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

Source: MAVCOM Analysis, ASP Holders

**Table A30: 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, observatopn & patrol
1Q17	7.3	10.2	-1.0	12.7	-46.4	-178.7
2Q17	11.8	43.0	4.9	10.8	-57.9	1.2
3Q17	11.9	20.4	1.3	6.6	-56.0	-121.3
4Q17	-7.4	95.7	3.6	-2.2	-35.4	-28.0
1Q18	-7.6	29.9	-12.8	1.8	-60.6	21.0
2Q18	39.8	27.7	5.5	6.6	-51.2	19.9

Source: MAVCOM Analysis, ASP Holders

**Table A31: 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

Source: MAVCOM Analysis, AOL Holders

**Table A32: Revenue of Ground Handling Sub-Segment by Business, 2015 – 2017**

Year	Revenue (RM million)		
	Catering	General Ground Handling	Refuelling
2015	339.5	257.9	18.9
2016	323.1	647.1	20.8
2017	359.0	665.9	18.4

Source: MAVCOM, GHL Holders

**Table A33: Operating Profit Margin of Ground Handling Sub-Segment by Business, 2015 – 2017**

Year	Operating Profit Margin (%)		
	Catering	General Ground Handling	Refuelling
2015	4.4	16.4	-3.7
2016	5.9	6.6	-8.0
2017	5.3	6.4	-9.0

Source: MAVCOM, GHL Holders



**Table A34: Number of General Ground Handlers by Type, 2018**

Type	Number of Companies
Primary	4
Secondary	6
General Aviation	10

Source: MAVCOM

**Table A35: Distribution of General Ground Handlers Across Airports in Malaysia, 2018**

Airport	Primary	Secondary	General Aviation	Total
KUL	4	4	0	8
SZB	1	2	9	12
BKI	4	1	2	7
PEN	5	1	1	7
KCH	4	0	1	5
JHB	3	0	0	3
LGK	3	1	1	5
AOR	3	0	0	3
BTU	3	0	0	3
IPH	3	1	1	5
KBR	3	0	1	4
KUA	3	1	0	4
LBU	3	0	0	3
MKZ	2	0	0	2
MYY	4	1	0	5
SBW	3	0	1	4
SDK	3	0	1	4
TGG	3	0	0	3
TWU	3	0	0	3

Source: MAVCOM

Note:

- 1) The numbers in the chart include the GHL holders that are also ASL, ASP, or AOL holders, and petroleum products retailers.
- 2) The chart only shows airports that the GHL holders are serving. Ground handling services at other airports are fulfilled via self-handling by the airlines themselves.

**Table A36: Number of Flights and Average Revenue per Flight, 2017**

Company	Number of Flights (million)	Average Revenue per Flight (USD)
Dnata	0.66	2,847
Menzies	1.38	1,207
SATS	0.55	1,040
Malaysian Companies	0.25	694

Source: MAVCOM Estimates, Dnata, Menzies, SATS, AeroDarat, GTR, Pos Aviation

## 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	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	My Jet Xpress Airlines Sdn Bhd
19	Myballoon Adventure Sdn Bhd
20	PLUS Helicopter Services Sdn Bhd
21	Pos Asia Cargo Express Sdn Bhd
22	Prima Air Sdn Bhd
23	Sabah Air Aviation Sdn Bhd
24	Sazma Aviation Sdn Bhd
25	Systematic Aviation Services Sdn Bhd
26	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
10	Hasrat Asia (M) Sdn Bhd
11	Helitech Aviation Services Sdn Bhd
12	Jets Fuels Sdn Bhd
13	KLM Line Maintenance Sdn Bhd
14	Malindo Airways Sdn Bhd
15	Mas Awana Services Sdn Bhd
16	MNM Aviation Services Sdn Bhd
17	Nusantara Aviation Services Sdn Bhd
18	Petron Malaysia Refining & Marketing Bhd
19	PETRONAS Dagangan Berhad
20	POS Aviation Sdn Bhd
21	Raya Airways Sdn Bhd
22	Sabah Air Aviation Sdn Bhd
23	Safeair Technical Sdn Bhd
24	Senai Airport Terminal Services Sdn Bhd
25	Select Fine Foods Sdn Bhd*
26	Shell Malaysia Trading Sdn Bhd
27	Shell Timur Sdn Bhd
28	Skypark FBO Malaysia Sdn Bhd
29	Smooth Route Sdn Bhd
30	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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If you have any queries or comments, please contact:



Level 19, Menara 1 Sentrum  
201, Jalan Tun Sambanthan  
50470 Kuala Lumpur  
Malaysia

Tel: +603 2772 0600

Fax: +603 2772 0601

Email: [enquiries@mavcom.my](mailto:enquiries@mavcom.my)