



## The Cockpit View

(Issue #5)

## OVERWEIGHT (Unchanged)

### Is air travel really safe?

- Flight QZ8501 has raised the risk premium for airlines; many airline share prices took a hit last week.
- Statistics and facts point that air travel is still the safest mode of travel by a big margin. The current negative perception is likely short-term and will blow over.
- OVERWEIGHT stance undeterred. We have BUYs on Cebu Air, AAV and Singapore Airlines.

### What's New

Flight QZ8501 crash has unnerved many and got them asking: "Is air travel really safe?" This is an understandable question given the triple series of aviation disasters plaguing the region in 2014 – an event unprecedented in the history of commercial aviation.

We look into the facts and statistics on air safety dating back to 1918 to establish the degree of air safety. This will provide an unbiased account and filter the emotional and perception aspects.

### What's Our View

The data reveals that air travel is the safest mode of travel by a mile. In fact, the safety factor has consistently improved since the 1960's thanks to continuous research, concerted regulations and technological evolution. The odds of a fatal accident in an aircraft is 1:4.7 million, compare that to a car accident rate of 1:6,702 and crossing the street which is 1:0.4 million.

The conclusion: If you have no qualms to cross the street or drive a car, then there is no factual reason to fear flying. The perception may be at an all-time low, but the reality is quite the opposite.

### Hot Stocks of the Week

The Bloomberg Asia Pacific Airlines Index shed 0.6% last week on thin volumes. The market took the QZ8501 incident as an excuse to realize profits. We think this is temporary; fuel price continues to decline and this should support for higher share prices.

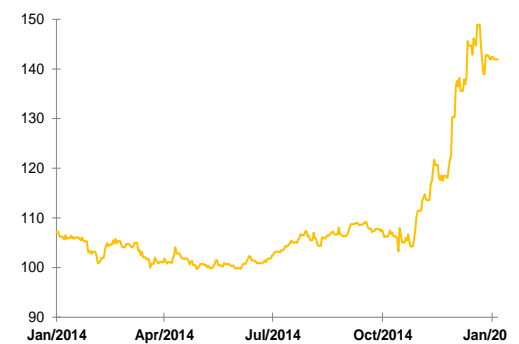
The top performing stock last week was Asiana (+6.1%) followed by the Chinese mainland carriers. All the AirAsia Group linked companies recorded significant declines last week – AirAsia (-7.3%), AAV (-5.3%) and AAX (-2.4%).

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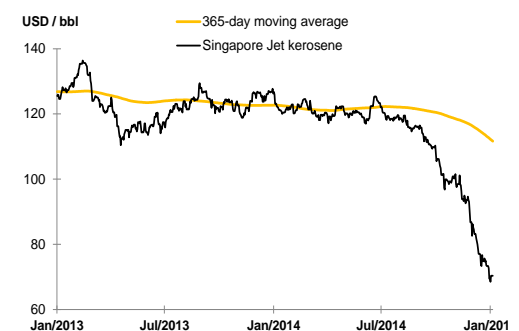
### Bloomberg Asia Pacific Airline Index



Current trend: **Stabilizing**

Spot	Last week	Last month	2013
142	143	137	107
	-0.6%	+4.0%	+32.6%

### Jet fuel price



Current trend: **Declining Fast**

Spot	2014	2013
USD70.4/bbl	USD112.4/bbl	USD122.7/bbl

### Our recent reports

- AirAsia - Rest in peace flight QZ8501  
Under Review, TP MYR3.25 (31 Dec)
- AirAsia - Pray for flight QZ8501  
Under Review, TP MYR3.25 (29 Dec)
- The Cockpit View (Issue #4)  
Dear Santa (24 Dec)
- The Cockpit View (Issue #3)  
The big oil relief (22 Dec)

## Airline safety in perspective

Commercial air travel is touted as the safest mode of transportation. The amount of money spent by the aviation industry on hardware, software and regulatory compliance dwarfs any other mode of transportation. Passenger aircraft have been engineered close to perfection, with zero tolerance for failure and multiple redundancies for every critical component. It is estimated that 25%-33% of an aircraft’s cost are on safety features.

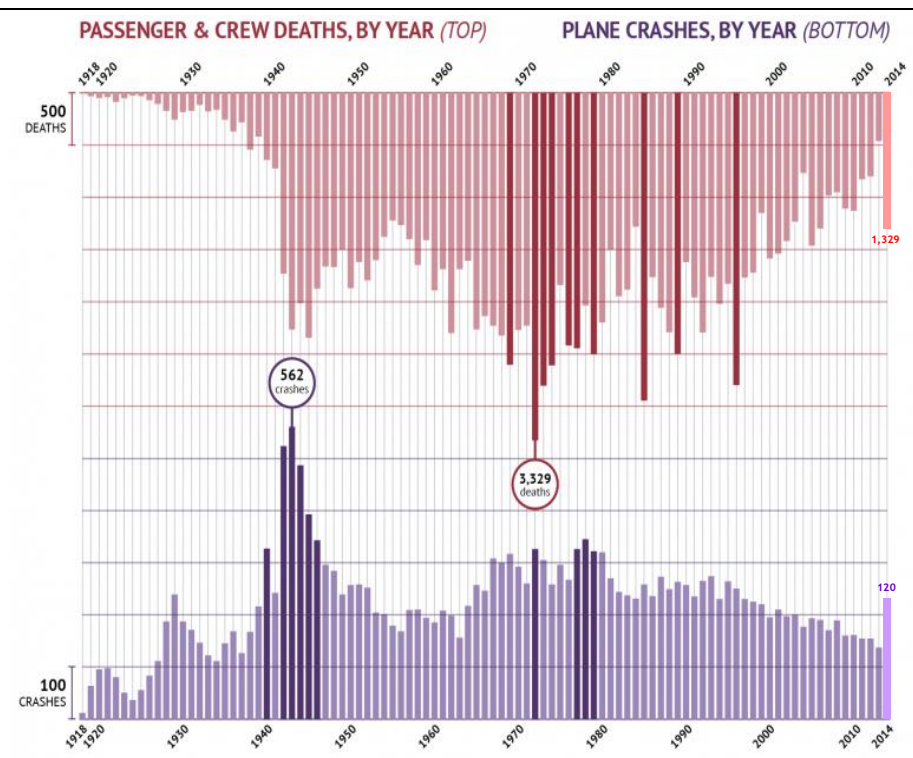
Whenever there is a fatal crash involving a passenger aircraft, it will immediately command international media coverage and outcry. Country heads and politicians will make it their top priority, and so will the government agencies. Every passenger aircraft crashes, no matter how small, has always been treated as a major catastrophe and is followed up with comprehensive investigations to uncover the root cause. It is the most scrutinised sector in the transportation industry.

### 2014 was not a good year for the industry, in absolute term

The graph below shows the number of aircraft crashes and casualties for all airplanes flying in the world, including private aviation, recreational flights, flight training and other non-civilian purposes (police, fire brigade, paramedics and other medical related transport, coast guard and military personnel transport).

The number of incidents surged in 2014, with a total of 120 airplane crashes and 1,329 casualties. This was a stark contrast to 2013 (459) which had the least casualties since World War II. The worst year on record remains 1972, whereby 3,329 peoples’ lives have perished.

Total aviation accidents and number of fatalities



Source: Bureau of Aircraft Accidents Archive

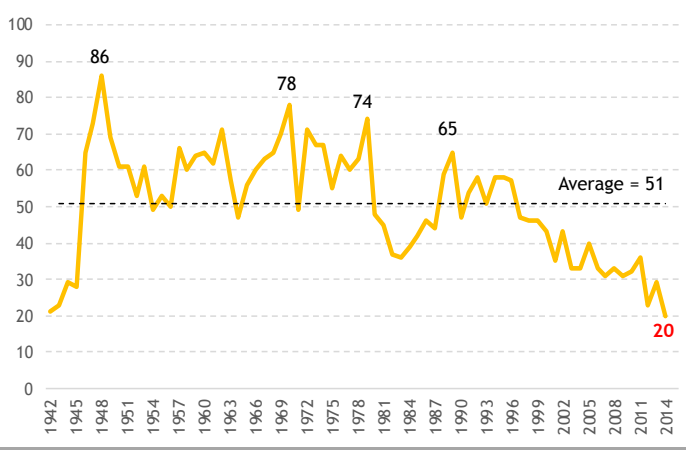
Note: The top 10 years for both deaths and crashes are highlighted in darker colour

### Commercial aircraft however, did well in 2014

When considering just commercial aviation, the fatalities figures were much lower as shown in the tables below. In 2014, there were 20 fatal commercial flights, which was the lowest since 1942 and significantly below the long-term average of 51 fatal crashes per year.

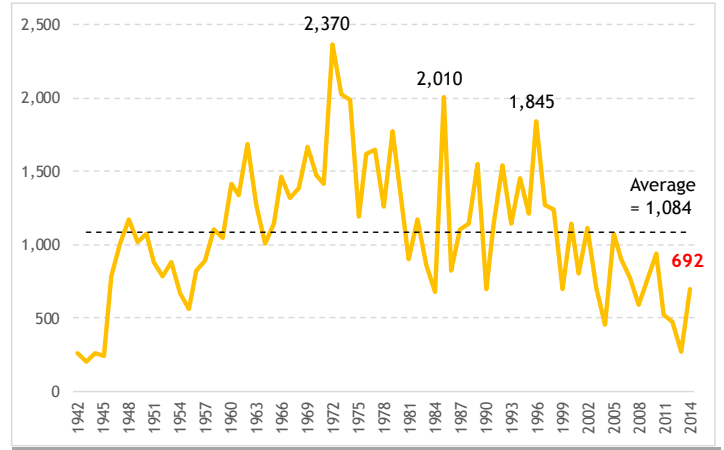
In terms of the number of casualties, the figure has risen to 692 in 2014 compared to 265 in 2013. It is important to emphasize that this casualty rate is significantly below the long-term average of 1,084 people per year. 2014 was a good year for commercial aviation, statistically speaking.

Number of fatal commercial flight



Source: Aviation Safety Network

Number of casualties due to commercial air travel incidents

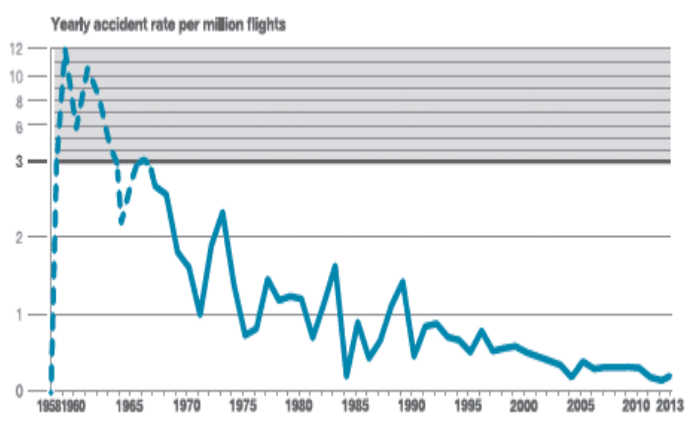


Source: Aviation Safety Network

### Accident rates are trending lower

The most accurate way to view aviation safety is by looking at the accident and casualty rate, in our view. This takes into account the total number of incidents over the total number of flights in the system. The graphs below show a clear downtrend in terms of number of fatal crashes and casualty rate since 1958. The 2014 figures are not incorporated in these graphs, but it should be similar to 2013 figures.

Yearly accident rate per million flights



Source: Airbus SAS

Yearly accident rate per million flights



Source: Airbus SAS

## Estimating the probability of death

Using the probability theory (refer to definition below), we compare the probability of death by various modes of transportation as well as other seemingly benign day to day chores. This provides a direct comparison and ranking of the risk factor.

*Probability theory, a branch of mathematics concerned with the analysis of random phenomena. The outcome of a random event cannot be determined before it occurs, but it may be any one of several possible outcomes. The actual outcome is considered to be determined by chance.*

[Encyclopedia Britannica](#)

### Probability of death based on selected scenario

Scenario	Probability
Chances of death from air travel (long-term average)	1:4.7 million
Chances of death from air travel (2014 data)	1:5.0 million
Chances of death to a pedestrian	1:0.4 million
Chances of death from car travel (developed nations)	1:6,702
Chances of death from car travel (Malaysia)	1:4,477
<b>Others</b>	
Chances of death by a lightning strike	1:3.4 million
Chances of death from AIDS	1:3,500

Sources: Aviation Safety Network, National Safety Council USA

The table above affirms that air travel is the lowest risk form of transportation. The probability of dying in an air crash via a commercial flight is 1:4.7 million using the long-term statistics. If it is adjusted only to include 2014 data, the figure then improves to 1:5.0 million as 2014 was a very good year in terms of aviation safety.

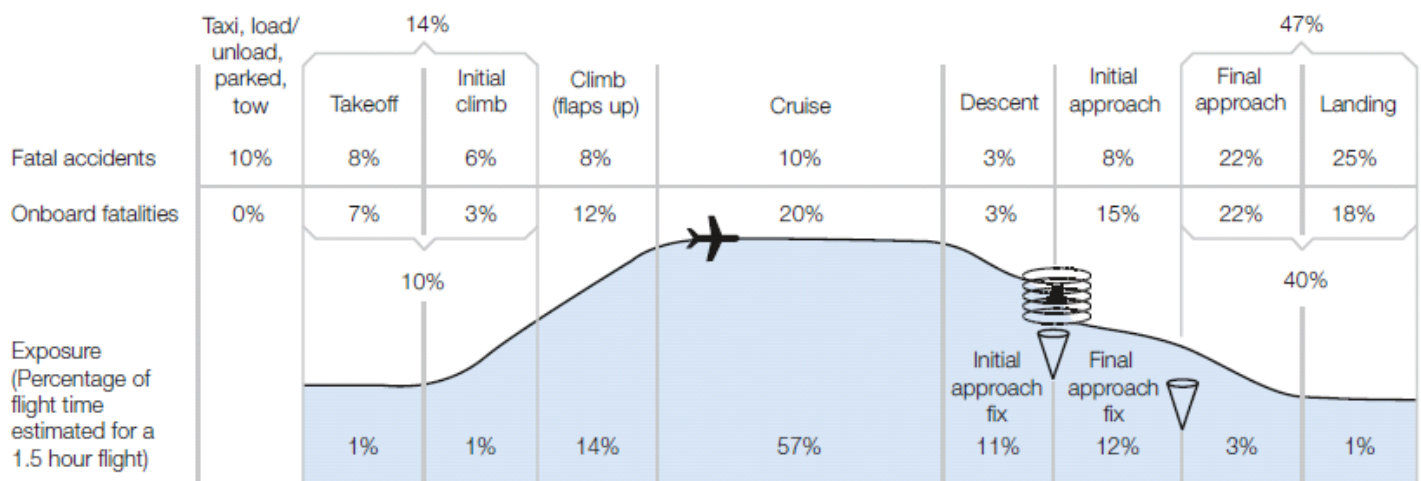
Other modes of transportation have substantially higher level of risk as compared to flying; driving a car is 700x higher, crossing the street is 11.8x higher. Even the chance of contracting and dying from AIDS is much higher than dying in a plane crash.

### When does fatal accident normally occur?

The graph overleaf shows the historical aircraft crashes segregated into different phases of flight. The most dangerous part of a flight is during landing whereby 47% of all fatal crashes and 40% of all casualties occurred during this phase. This is followed by the take-off phase, with 14% of fatal crashes and 10% of casualties happening during this phase.

The safest period of a flight technically speaking is during cruising with 10% of fatal crashes happening in this phase. However, it is responsible for 20% of all casualties. The big mismatch is because during cruising phase, the aircraft is travelling at high speeds in very high altitude; any accident is subjected to extreme repercussions with lower chances of survival. During the take-off and landing phase, the aircraft is travelling at comparatively lower speed and altitude, and therefore has higher chances of survival.

Fatalities by phase of flight



Note: Percentages may not sum precisely due to numerical rounding.

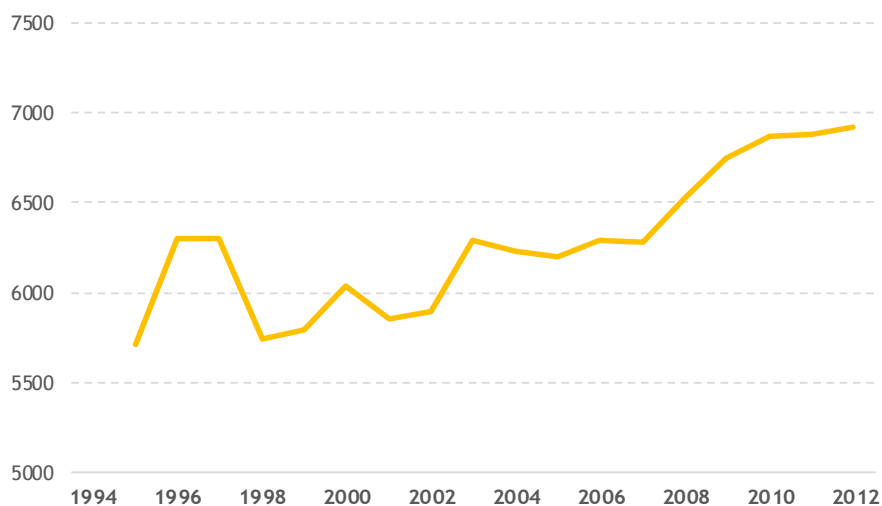
Source: Boeing

Malaysia road fatalities

Road accidents and fatality is something every Malaysian can relate to from personal experience, families, friends and acquaintances. The graph below shows the fatality count from various road accidents (bicycle, motorcycle, car, bus, lorry and trucks) since 1995. Note that the trend is rising and Malaysia has the highest road fatality rate in the ASEAN region.

The cumulative casualties from all Malaysian registered airlines since 1918 is 671 people. This is roughly the same casualty rate for Malaysian road fatalities every month! Many Malaysians fear flying but have absolutely no fear of driving a car. Perhaps, it's time we do.

Malaysia road fatalities



Source: Malaysia Institute of Road Safety

### Conclusion

Air travel is without a doubt the safest mode of travel proven by statistics. The trend is positive and promises for improved safety factor going forward. Despite the highly publicised dreadful accidents in 2014, less so publicised was the fact that 2014 was actually a very good year with a record low number of fatal accidents and significantly below historical average casualty rate.

In many ways the airline industry is a victim of its own success. Due to its stellar track record and very rare occurrence of an accident, any incident will be manifested on a grand scale globally. Other modes of transport have magnitudes higher on degree of risk, but yet this has been openly accepted with little fear or apprehension. Verily, airline safety suffers from negative perception driven by emotions and not backed by facts.

## Asia Pacific airlines share price movement

Company Name (alphabetical order)	Bloomberg Ticker	Price 2-Jan	Current share price versus		
			1 week	1 month	1 year
Air China	753 HK	6.31	0.8%	21.4%	63.4%
Air New Zealand	AIR NZ	2.60	-3.8%	4.2%	45.3%
AirAsia	AIRA MK	2.90	-7.3%	-2.6%	11.7%
AirAsia X	AAX MK	0.69	-2.4%	-1.5%	-37.6%
All Nippon	9202 JP	298	-0.2%	0.2%	25.4%
Asia Aviation	AAV TB	4.56	-5.3%	-6.5%	22.0%
Asiana Airlines	020560 KS	6,560	6.1%	29.9%	38.4%
Bangkok Airways	BA TB	21.00	-4.9%	-12.9%	
Cathay Pacific	293 HK	16.66	1.4%	-3.0%	2.9%
Cebu Air	CEB PM	84.95	1.1%	-92.0%	-86.6%
China Airlines	2610 TT	13.95	3.9%	-2.6%	26.0%
China Eastern	670 HK	3.70	4.5%	-8.0%	66.5%
China Southern	1055 HK	3.68	5.9%	5.2%	67.1%
EVA Airways	2618 TT	21.85	4.6%	13.2%	49.6%
Garuda Indonesia	GIAA IJ	585	-5.7%	0.9%	25.4%
Hainan Airlines	600221 CH	3.43	5.0%	9.6%	66.2%
Japan Airlines	9201 JP	3,670	-2.4%	-3.8%	22.0%
Korean Air Lines	003490 KS	47,450	-3.0%	1.5%	37.7%
Nok Air	NOK TB	13.30	0.0%	4.8%	-31.1%
Qantas Airways	QAN AU	2.39	3.3%	12.7%	100.2%
Singapore Airlines	SIA SP	11.63	-1.4%	4.1%	5.4%
Skymark Airlines	9204 JP	319	2.7%	54.6%	-23.9%
Thai Airways	THAI TB	14.90	-0.7%	-8.8%	5.8%
Tiger Airways	TGR SP	0.27	1.5%	78.8%	10.8%
TransAsia Airways	6702 TT	12.70	1.2%	-1.6%	-4.6%
Virgin Australia	VAH AU	0.43	0.7%	-5.9%	-4.1%
<b>Average</b>			<b>0.2%</b>	<b>3.5%</b>	<b>20.2%</b>

Sources: Bloomberg, Maybank KE

**Profit taking activity**, is the general trend across the region on thin volumes, which is expected for this time of the year. The AirAsia Group of companies, namely AirAsia, AirAsia X and AAV have experienced sharp share price declines due to the aftermath of the QZ8501 crash.

The top performing stock last week was Asiana (+6.1%) followed by selected Chinese mainland carriers, namely China Eastern (+4.5%), China Southern (+5.9%) and Hainan Airlines (+5.0%).

## Asia Pacific airlines valuations

Company Name <i>alphabetical order</i>	Ticker	Our Rating	Price 2-Jan	Target Price	Up / (down)	MCAP (USD b)	PE (x) 2014	2015	EV/EBITDAR (x) 2014	2015	P / Book (x) 2014	2015	ROE (x)	Gearing (x)
<b>Full service carriers</b>														
Air China	753 HK	NR	6.27			14.5	18.2	11.7	9.6	8.1	1.23	1.13	6.5	168
Air New Zealand	AIR NZ	NR	2.47			2.1	9.1	8.2	3.9	3.7	1.47	1.45	16.3	27
All Nippon Airways	9202 JP	NR	299.3			8.7	25.3	20.9	7.1	6.5	1.31	1.33	5.5	61
Asiana Airlines	020560 KS	NR	7070			1.2		13.9	11.7	8.7	1.53	1.68	-4.1	340
Bangkok Airways	BA TB	NR	19.5			1.2	72.2	19.3	25.4	12.7	4.35	1.51	3.3	164
Cathay Pacific	293 HK	UR	16.88			8.6	18.6	7.0	7.4	6.0	1.09	1.03	5.5	65
China Airlines	2610TT	NR	14.50			2.4		24.8	10.4	8.8	1.57	1.49	-2.5	198
China Eastern	670 HK	NR	3.70			9.1	18.2	10.8	9.6	8.1	1.40	1.20	7.0	251
China Southern	1055 HK	NR	3.63			7.1	19.8	10.1	7.8	6.5	0.87	0.81	4.0	190
EVA Airways	2618 TT	NR	22.2			2.7	47.9	18.9	9.7	8.5	1.98	1.98	4.9	119
Garuda Indonesia	GIAA IJ	NR	565			1.2		15.0		6.1	1.12	1.13	9.0	47
Hainan Airlines	600221 CH	NR	3.42			6.7	18.0	14.3			1.53			178
Japan Airlines	9201 JP	NR	3600			10.8	8.8	8.2	4.7	4.4	1.83	1.62	19.6	-33
Korean Airlines	003490 KS	NR	45150			2.4		13.1	9.5	8.3	1.08	1.22	-7.6	515
Qantas Airways	QAN AU	NR	2.42			4.3	13.6	7.7	5.1	4.2	1.86	1.73	13.3	121
Singapore Airlines	SIA SP	BUY	11.55	12.0	3.9%	10.1	14.7	10.3	6.7	6.1	1.05	1.04	2.8	-31
Skymark Airlines	9204 JP	NR	333			0.3					0.78			-10
Thai Airways	THAI TB	BUY	14.60	12.0	-17.8%	1.0	-1.8	92.6	16.0	7.9	0.67	0.68	-24.2	289
TransAsia Airways	6702 TT	NR	12.75			0.2	22.8	17.3	5.9	5.8	0.95	0.94	4.6	82
Virgin Australia	VAH AU	NR	0.41			1.2		45.6	10.8	7.2	1.37	1.26	-7.9	135
<b>FCC average</b>							<b>19.6</b>	<b>13.6</b>	<b>9.5</b>	<b>7.1</b>	<b>1.45</b>	<b>1.29</b>	<b>7.9</b>	<b>144</b>
<b>Low cost carriers</b>														
AirAsia	AIRA MK	UR	2.75	3.25	18.2%	2.2	15.2	9.3	10.3	8.4	1.48	1.38	9.8	176
AirAsia X	AAX MK	SELL	0.68	0.60	-11.1%	0.5		13.2	29.7	7.4	1.85	1.78	-39.7	144
Asia Aviation	AAV TB	BUY	4.30	5.50	27.9%	0.6	293.7	19.2	6.7	4.9	1.09	0.99	0.6	5
Cebu Air	CEB M	BUY	85.85	83.0	-3.3%	1.2	14.8	8.3	8.5	8.0	2.31	2.15	15.2	110
NOK Air	NOK TB	HOLD	13.10	14.0	6.9%	0.2	-66.8	9.5	8.8	5.2	2.19	2.00	-8.3	-118
Tiger Airways	TGR SP	NR	0.27			0.4				35.2		2.60	-69.9	68
<b>LCC Average</b>							<b>15.0</b>	<b>11.9</b>	<b>12.8</b>	<b>6.8</b>	<b>1.78</b>	<b>1.82</b>	<b>8.6</b>	<b>64</b>

Sources: Bloomberg, Maybank KE

UR = Under Review

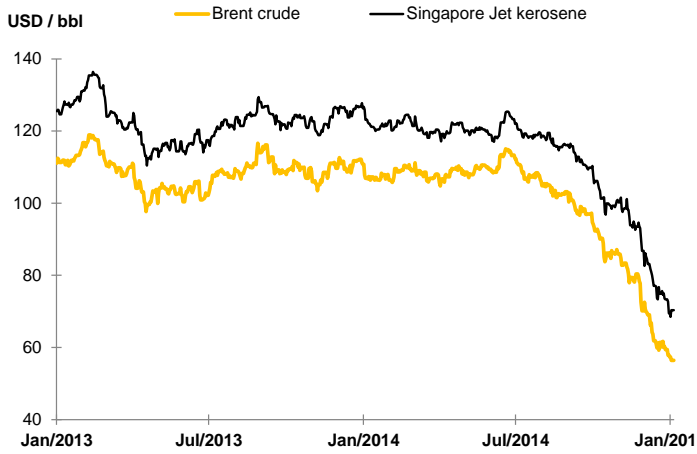
NR = Not Rated

\* All forward-looking estimates and multiples for companies not under Maybank's coverage, including companies currently under review, are from Bloomberg consensus.



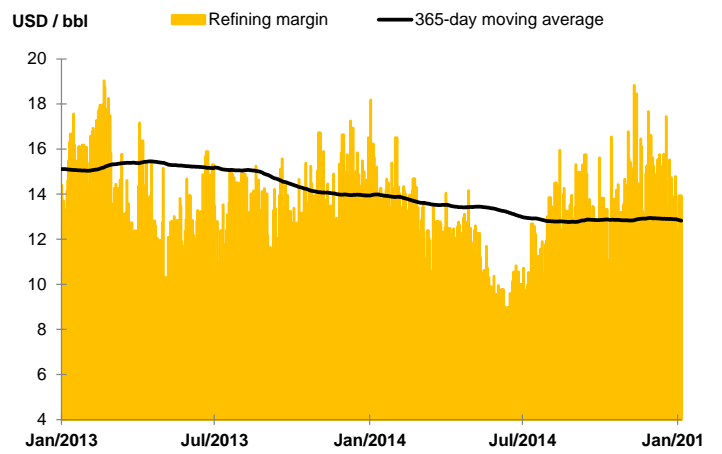
## Key graphs that matter

Figure A: Singapore Jet fuel and Brent Crude



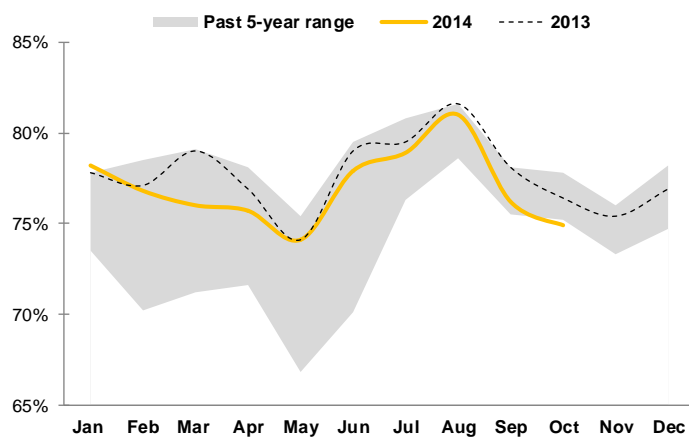
Sources: Bloomberg, Maybank KE

Figure B: Refining margin



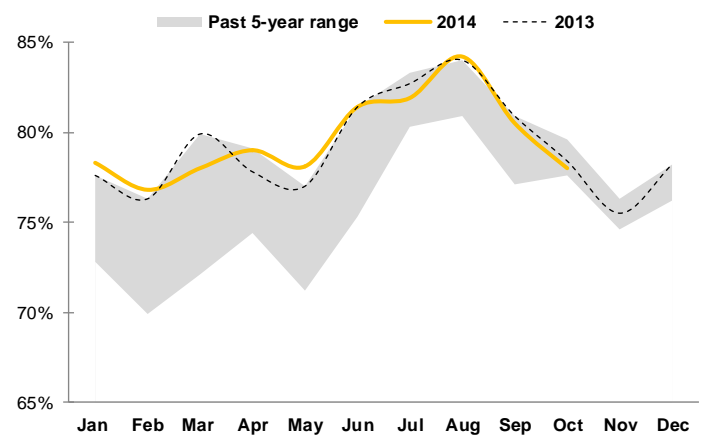
Sources: Bloomberg, Maybank KE

Figure C: Asia Pacific airlines passenger load factor



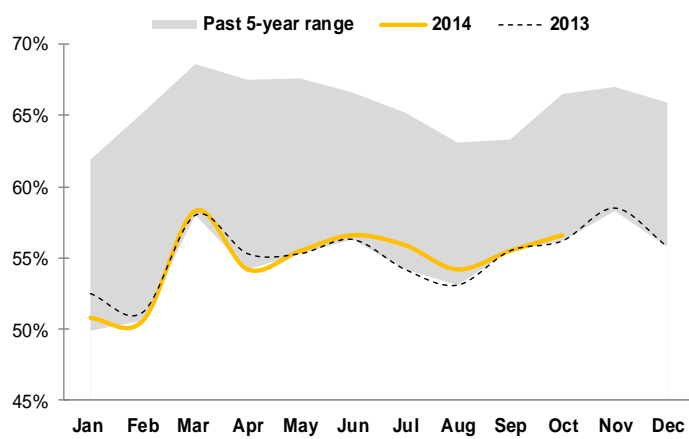
Source: IATA

Figure D: Global airlines passenger load factor



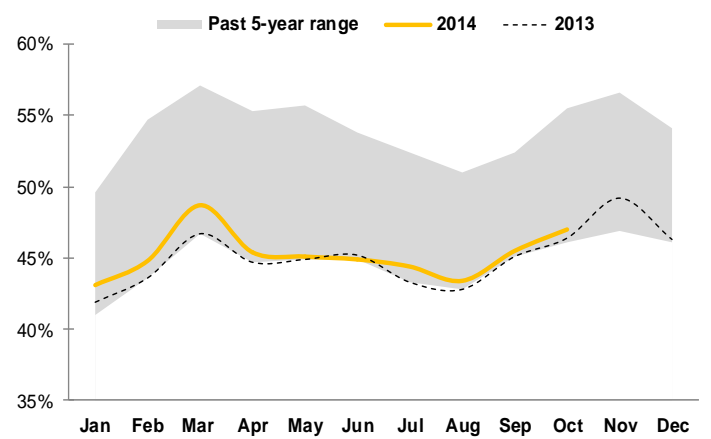
Source: IATA

Figure E: Asia Pacific airlines cargo load factor



Source: IATA

Figure F: Global airlines cargo load factor



Source: IATA

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