EDISON

China Aviation Oil (Singapore)

Initiation of coverage

Fuelling growing aviation demand

Aviation services

As the sole licensed importer and supplier of jet fuel to China's civil aviation industry, China Aviation Oil (Singapore) Corporation (CAO) is a direct play on the rapidly rising demand for air travel in China, augmented by both international and product expansion. While a healthy dividend income from a joint venture at Shanghai's rapidly expanding Pudong Airport provides the bulk of earnings, the growing trading and supply of oil is supportive of our 14% EPS CAGR over the next two years. Our cash and peer-based fair value of US$1.45 (S$2.04) suggests potential for investors.

Year end	Revenue (US$m)	PBT* (US$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
12/15	8,987	63.0	7.3	2.1	14.9	1.9
12/16	11,703	90.3	10.4	3.2	10.5	2.9
12/17e	13,232	103.3	11.9	3.6	9.2	3.2
12/18e	14,918	116.9	13.5	4.0	8.1	3.3

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

Chinese aviation growing rapidly

Chinese air travel grew at 15% in 2015, with international flights from People's Republic of China (PRC) growing at 32%. China is expected to lead future global aviation traffic growth, with a committed airport build strategy and increasing business and leisure demand. As the sole supplier of imported jet fuel into PRC, CAO is exposed primarily to international traffic growth due to the restrictions on bonded fuel use. For CAO, stability is provided by the fixed price per barrel that it receives on this core supply. However, its associate Shanghai Pudong International Airport (SPIA) owns and operates the entire refuelling infrastructure at the airport. Despite only owning a 33% share, this is the largest contributor to CAO's profitability and cash flow (through dividends), accounting for c 62% of operating profit in FY16 and most of cash flow. With the airport currently being expanded, the demand for jet fuel should continue to grow rapidly which, combined with the exclusive import licence to the PRC, provides a firm foundation for investors.

Strategy to expand capability and regionally

CAO is the largest physical jet fuel supplier and trader in Asia. CAO management is augmenting the growth afforded by the Chinese Aviation market by extending its reach geographically, and trading in a wider range of products. In FY10, 80% of revenues came from China, whereas in FY15 that figure had fallen to 52%. It now supplies jet fuel to more than 40 international airports in Asia, EMEA, North America and Europe. It continues to add assets to its supply infrastructure including storage. The ambition of Vision 2020 is to become a reputable global supplier of aviation fuels and synergistic transport fuels, including new clean alternative fuels.

Growth prospects justify a re-rating

CAO is trading on 9.2x our FY17e EPS, at a 32% discount to its closest peer World Fuel Services. While some disparity can be justified by global scale, the exposure to Chinese growth warrants a closure of CAO's relative rating.

27 February 2017

Price	**S$1.53**
Market cap	**S$1,316m**
	S$1.4064/US$
Net cash (US$m) at 31 December 2016	187
Shares in issue	860.2m
Free float	29%
Code	G92.SI
Primary exchange	SGX
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	1.3	11.3	146.0
Rel (local)	(1.1)	1.6	106.7
52-week high/low		S$1.56	S$0.62

Business description

China Aviation Oil (Singapore) Corporation (CAO) is the largest physical jet fuel supplier and trader in Asia. It holds the sole import licence for bonded jet fuel into China, and has nascent businesses in the US and Europe. Of its five associates, the most important is SPIA, which supplies all jet fuel to Shanghai Pudong Airport.

Next events

Q1 results	19 April 2017

Analysts

Andy Chambers +44 (0)20 3681 2525

Alexandra West +44 (0)20 3077 5700

industrials@edisongroup.com

Edison profile page

EDISON

Investment summary

Company description: Largest jet fuel supplier in Asia-Pacific

CAO is the largest physical jet fuel trader in the Asia-Pacific region and the sole supplier of imported jet fuel to the civil aviation industry of China. The company relisted a decade ago and in that time it has internationalised its business; 52.5% of its revenues came from China in 2015, compared to 80% in 2010. It is the second largest provider of fuel to LA International Airport (LAX) after Chevron, and its growth strategy is to expand into other geographies. The group also trades other oil products and owns investments in oil-related businesses such as storage, pipelines and airport refuelling facilities. The Chinese government owns a 51% stake through China National Aviation Fuel Group Corporation (CNAF) and BP owns 20%, leaving 29% in free float.

Strategic direction is encompassed in long-term plans. The current Vision 2020 was launched in 2013 and provides the basis for CAO's expansive strategy. The company is seeking to become one of the largest transportation fuel providers in the world, leveraging its strong position in Asian jet fuel supply to continue to expand both its product offering and territories served. It is already a global player, has expanded into other transportation fuels, has an integrated supply chain and developed very strong trading and risk management skills.

Valuation: Securing progressive growth is key

CAO's closest peer comparator is World Fuel Services, which currently trades at a 48% premium to CAO. In our opinion, this is unwarranted given its unique exposure to the fast growing Chinese aviation market. We value the core CAO operations using a DCF given the relative stability offered by being a physical jet fuel supplier as well as trader. Paper trading of oil contracts is limited to 10% of total trade volume, with 90% backed by physical contracts substantially de-risking the activity. The cost plus per barrel nature of the sole source import supply contract to China provides further stability as well as a gross margin premium return compared to normal trading activity. Using our calculated WACC of 10.4% implies a core CAO valuation of US$0.80/share (S$1.12). To value the substantial associates contribution appropriately, we use a simple P/E combined with two DCF valuations of the dividends. This provides a composite value of US$0.64 (S$0.90) per share. Our total DCF-based fair value for CAO is thus US$1.44 (S$2.02) per share. Including higher peer group multiples increases the fair value to US$1.45/share (S$2.04).

Financials: Balance sheet strength facilitates strategy

CAO is a well-capitalised and cash-generative company. The stability afforded by the associates' large contributions also acts as a buffer against undue oil market volatility. With a positive net cash inflow in 2016, CAO currently has cash balances of c US$187m. This supports the expansionary strategy based on organic growth and M&A. As CAO grows its international standing, augmenting the rapid growth likely to be driven by Chinese air transport, returns should be enhanced further. Management's commitment to a 30% payout ratio from 2015, as opposed to the fixed dividend previously, is increasing shareholder returns, with a 50% dividend rise in FY16. This is especially true if the company can secure resilient and progressive growth, as per its Vision 2020 strategy.

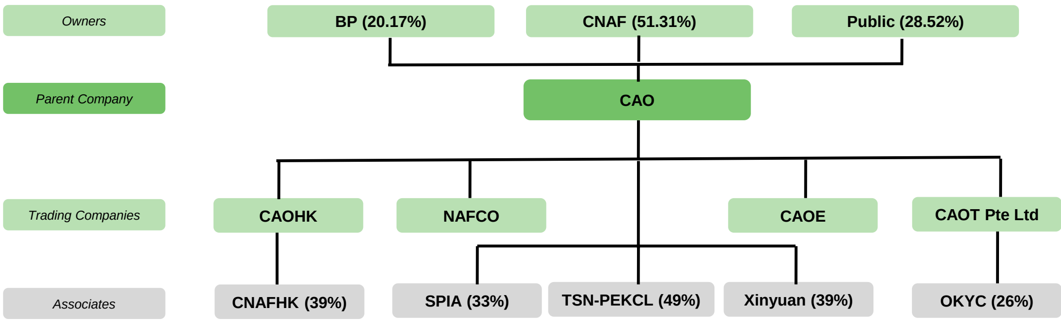
Sensitivities: Risk management for volatile markets

Given price fluctuations for oil products, the volatile nature of fuel supply markets and the inherent risks in trading activities, albeit well managed utilising sophisticated strategies, the consistent achievement of growth expectations in any territory is challenging. However, the ability of a shift in government policies to interfere and disrupt markets is very real.

CAO – the largest trader of jet fuel in Asia

China Aviation Oil (Singapore) Corporation (CAO) was incorporated on 26 May 1993 and was floated on the main board of the Singapore Stock Exchange in 2001. Its shares were suspended from trading in 2004 and relisted in 2006 after a significant restructuring. The company has two major shareholders: China National Aviation Fuel Group Corporation (CNAF) owns 51% of the company and the oil major BP owns just over 20% (see Exhibit 1). CNAF is state owned and is the largest provider of aviation transportation logistics services in China. CAO's chairman is always a member of the CNAF board.

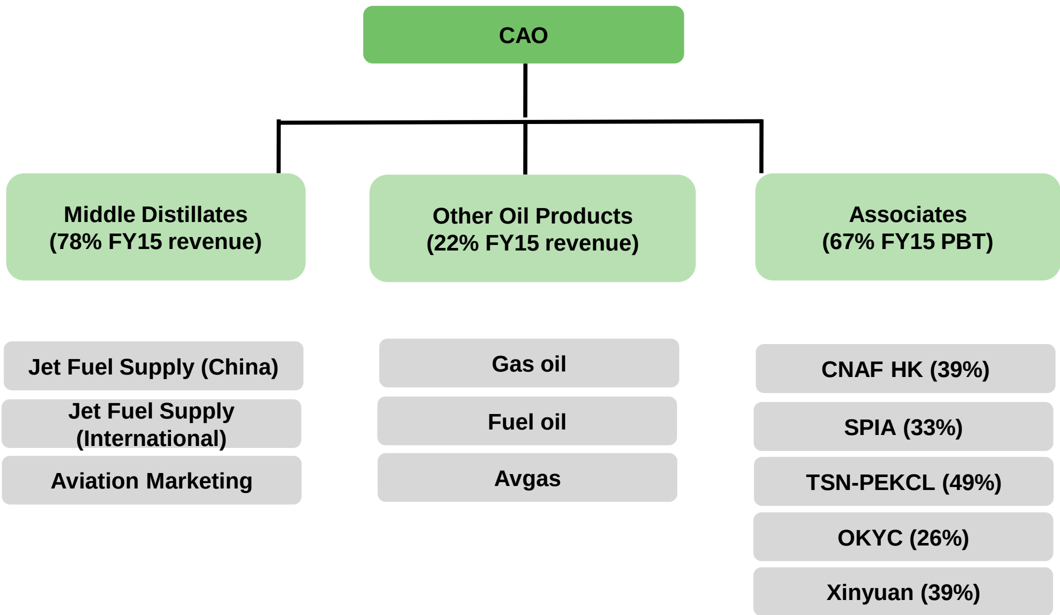
Exhibit 1: China Aviation Oil (Singapore) Corporation (CAO) group structure



Source: CAO Annual Report 2015, Edison Investment Research

CAO is the largest physical trader of jet fuel in Asia and has the sole import licence for bonded jet fuel into China. It has two divisions, as shown in Exhibit 2: Middle Distillates and Other Oil Products.

Exhibit 2: China Aviation Oil (Singapore) Corporation (CAO) divisional structure



Source: CAO Annual Report 2015, Edison Investment Research

Middle Distillates generated 78% of the group's revenue in FY15. It supplies bonded jet fuel for international travel at all international airports across China, including the major gateways to the country: Beijing Capital International Airport, Shanghai Pudong, Hongqiao International Airport and Guangzhou Baiyun International Airport. It also supplies jet fuel to airlines at 43 international airports outside mainland China. Most notably, in FY14 CAO successfully penetrated the Los Angeles Airport (LAX) fuel consortium, and in FY15 exported jet fuel from China to the US for the first time. LAX was the seventh busiest airport in the world in 2015. The division's volume was split

70:30 in FY15 between China and international supply. Notably, CAO doubled the volume of jet fuel it supplies to non-Chinese carriers. The Aviation Marketing arm of the Middle Distillates division is effectively an enabler. It is trying to grow CAO's global presence by identifying new market opportunities and establishing co-operation agreements with strategic partners.

Other Oil Products is the much smaller of the two divisions, generating 22% of group revenue in FY15. It was established in 2008 with petrochemicals to diversify CAO's product offering. The petrochemical offering has been withdrawn and its current offering is gas oil, fuel oil and aviation gas (avgas). Historically, it has been a small percentage of traded volumes, but as of Q316 Other Oil Products was 44% of the group's total volume supplied and traded. However, market conditions have negatively affected the profitability of this business since FY14. Aviation gas (avgas) is used in small piston engine-powered aircraft. Worldwide avgas volumes are low, because although avgas-fuelled aircraft outnumber jet-fuelled aircraft, they are much smaller and make shorter flights. However, in 2015 CAO increased its volume of avgas supplied, due to expanding its business into India, Indonesia and Saudi Arabia. Fuel oil is used in the maritime market, while gas oil (essentially diesel) is used in the commercial and agricultural sector for equipment such as cranes, bulldozers, tractors and combine harvesters as well as automotive markets, especially in Indonesia.

CAO has five associate companies, as shown in Exhibit 3. In FY16 the associates represented 68% of group operating profit, of which Shanghai Pudong International Airport Aviation Fuel Supply Company (SPIA) contributed 91%. SPIA is the fastest growing major international airport in the world and passenger capacity is set to increase when the fifth runway is completed at the end of 2017, and a new passenger hub is added by 2019.

Exhibit 3: CAO associate companies

	Products	CAO stake
Shanghai Pudong International Airport Aviation Fuel Supply Company (SPIA)	• Owns and operates all the refuelling facilities at Pudong airport, including the hydrant system, dispenser fleet, refuelling stations, airport tank farm, storage terminal and a pipeline connecting the airport to the Waiqaoqiao terminal.	33%
China National Aviation Fuel TSN-PEK Pipeline Transportation Corporation (TSN-PEKCL)	• 185km pipeline transporting the majority of jet fuel requirements for Beijing Capital International airport and Tianjin Binhai International airport.	49%
China Aviation Oil Xinyuan Petrochemicals Co (Xinyuan)	• Storage and trading of jet fuel and other oil products.	39%
Oilhub Korea Yeosu Co (OKYC)	• Developed and operates a 1.3m² storage capacity for crude oil and oil products that is utilised by oil majors.	26%
CNAF Hong Kong Refuelling (CNAF-HKR)	• Plane refuelling services at Hong Kong International Airport (HKIA). CNAF-HKR is one of three licensed providers at HKIA. It has only been in operation since 1 August 2015.	39%

Source: CAO Annual Report 2015, Edison Investment Research

CAO's transformation – Vision 2020

Over the past decade, CAO has undergone an impressive transformation. In 2004 it reported estimated losses of c US$550m caused by the then CEO, Chen Jiulin, speculatively trading oil derivatives. After a total corporate restructuring, which saw BP become a strategic investor, CAO is now established as the largest physical supplier of jet fuel in Asia, with an enviably exclusive position in China. Vision 2020 (launched in 2013) elucidates the current management's strategy to globalise CAO while continuing to exploit forecast aviation growth in Asia, in order to be "a constantly innovating global top-tier integrated transportation fuels provider".

Exhibit 4: CAO Vision 2020 strategy

		Now	Vision 2020
Middle Distillates	Jet Fuel Supply & Trading	• Largest physical trader in Asia Pacific • Growing trading activities outside the region • Investments in storage facilities	• Expand supply and trading in the Middle East, Europe & US • Invest in logistics assets
	Aviation Fuel Marketing	• Preferred supplier to Chinese airlines • Presence at more than 43 airports globally	• Expand locations and customer base • Invest in airport refuelling assets • Integration with trading activities
Other Oil Products	Fuel Oil	• Active player in Asia Pacific	• Enter key Asia & Middle East bunker markets • Invest/acquire bunker refuelling and logistics assets
	Gas Oil	• Active player in SE Asia	• Set up trading operations in Europe • Expand trading in Asia, US & Europe
	Avgas	•.Sole importer of Avgas to China but volumes are currently low	• Grow volumes to take advantage of forecast growth in Chinese aviation market
New business area	LNG and bio-jet		• Monitor market developments • Evaluation and in-depth analyses • Proactively seek market entry opportunities

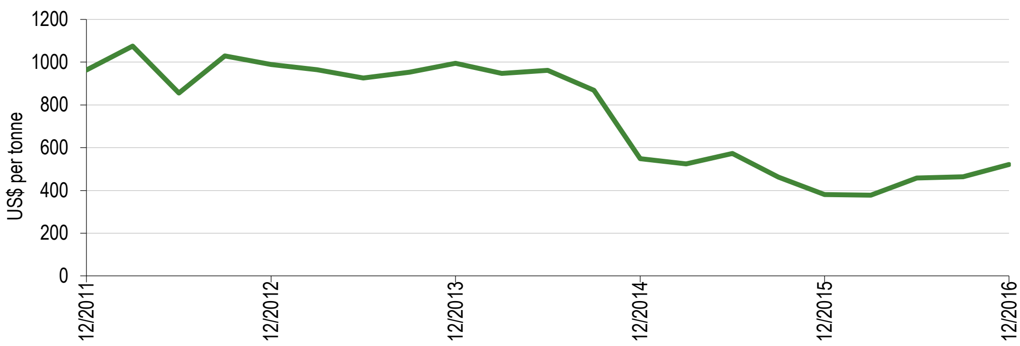
Source: Company presentations, Edison Investment Research

How CAO does business

CAO benefits from cost-plus pricing for the bonded jet fuel it supplies to China. This means it has the opportunity to improve its margin through its trading strategy. CAO trades higher volumes when the market is in contango (spot price is lower than the forward price). During periods of backwardation (spot price is higher than the forward price) orders are procured as close to when they are needed as possible. Crucially, 90% of volumes traded must be backed by physical orders from customers, so CAO is a supplier, not so much a trader of jet fuel. The price for jet fuel supplied outside China is fixed with the customer one month before delivery so whilst the oil price impacts revenues, the margin is well protected (see Exhibit 5).

The competitive dynamic in the jet fuel industry varies across the globe and CAO is in an ideal position to exploit the current landscape. China is a closed market where CAO has the sole import licence. This situation does not look likely to change in the near future; we discuss this further in the sensitivities section on page 9. Singapore is a partially closed market where a company has to be a member of the jet fuel consortium CAHFI. Europe is a partially open market because it does not produce enough jet fuel to fulfil its own demand and the US is an entirely open market. CAO has a myriad of competitors across the globe (although none in China), which range from big oil majors such as Chevron to small specialist oil traders.

Exhibit 5: Singapore jet fuel price (quarterly, US$ per tonne CIF*)



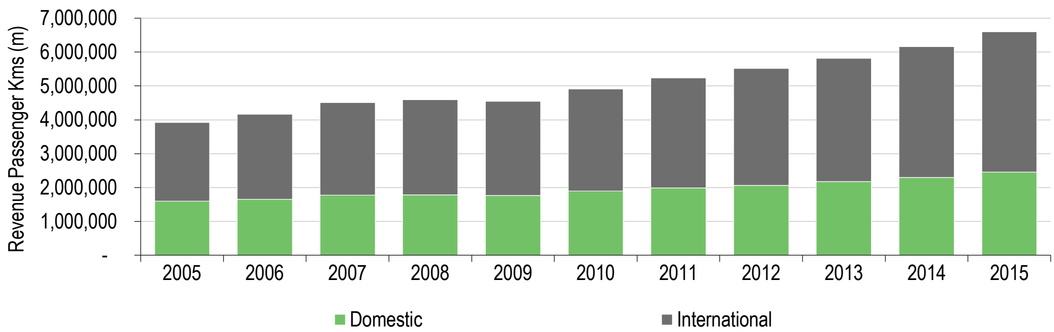
Source: Bloomberg. Note: CIF = cost insurance and freight.

The management team is experienced in the Chinese Oil market and has benefited from the involvement of BP since 2006. Meng Fanqiu has been CEO for the past 10 years and previously worked for CNAF and CAAC. He has been on board throughout CAO's restructuring and has been the driving force behind internationalising the business. Jean Teo, the chief operating officer, previously worked for BP Singapore, during which time she was seconded to the position of head of trading at CAO. She is now a full CAO employee and is responsible for developing and executing trading strategies.

A proxy for international aviation growth from China

Aerospace is widely acknowledged to be an industry in a period of structural growth. International travel from China is increasing four times faster than the global average, so CAO is exposed to a sweet spot in the market. The International Civil Aviation Organisation (ICAO) estimates that revenue passenger kilometres (RPKs, the number of revenue-paying passengers x distance flown) grew at an average of 6.1% over the past five years and at 7.1% in 2015, as shown in Exhibit 6. Asia-Pacific is forecast to lead world passenger traffic growth over the next 10 years, at an average rate of 6.1%, compared to global growth of 5.0%. By 2035, half of the top 20 traffic flows will involve Asia-Pacific.

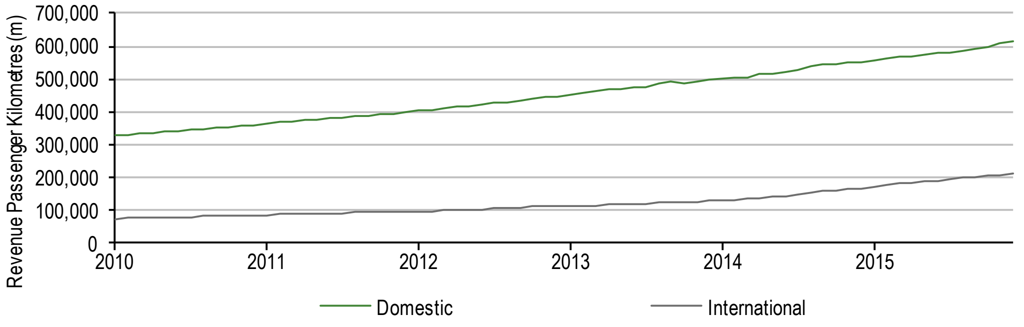
Exhibit 6: ICAO global RPKs 2005-15



Source: ICAO, Edison Investment Research

Chinese air travel grew 15% in 2015. The domestic Chinese market is triple the size of the international Chinese market, but international travel is growing much faster. It grew at an average of 16% in 2014, 25% in 2015 and 32% in 2016 (Exhibit 7). CAO has exposure to Chinese domestic travel through its investment in SPIA, which refuels all aircraft, but its exclusive refuelling rights are for the fast-growing Chinese international market. We estimate RPK growth of 10% in 2017 and 2018, implying a traffic multiplier of 1.54x GDP growth of 6.5% (last five years' average 1.83x). This drives our revenue forecasts for CAO. CAO is therefore exposed to an end-market with very strong prospects and can be seen as a proxy for growth in international travel to and from China.

Exhibit 7: Chinese domestic and international RPKs 2010-15



Source: Bloomberg, Edison Investment Research

The middle classes in Asia are expected to double to over 2.5 billion people over the next 20 years. Chinese middle class households already exceed the number in the US and will be more than double by 2024, according to Oxford Economics.

While an individual's propensity to travel is driven at the most fundamental level by wealth, it is clear that the Chinese government is the force propelling growth in China's aviation industry. The 12th Five-Year Plan published in 2010 listed aviation as "one of seven major strategic industries". Public investment in aerospace over those years totalled US$230bn, a 50% increase over the comparable period in the previous five-year plan, and 10 times as much as the US Federal Aviation Administration's budget for capital improvements and airport construction during the same period.

China's "One Belt, One Road" initiative introduced in the 13th Five-Year plan is intended to improve links between China, East Asia and Europe by building infrastructure and developing trade ties. Countries on the 'belt and road' have become the focus of international route expansion by Chinese airlines, which are increasingly competing with international airlines. This is an unusually outward-looking initiative by the Chinese government and is supportive of CAO's globalisation strategy. The ASEAN–China Air Transport Agreement of 2010 has been a significant driver in increasing the number of routes in the region. In 2009 there were 78 airport pairs, but in 2014 the figure had doubled to 156. Airbus's 2016 Global Market Forecast states that 13,239 new aircraft will be delivered to Asia over the next 20 years. 32% of these will replace the existing fleet, but 68% will create new capacity.

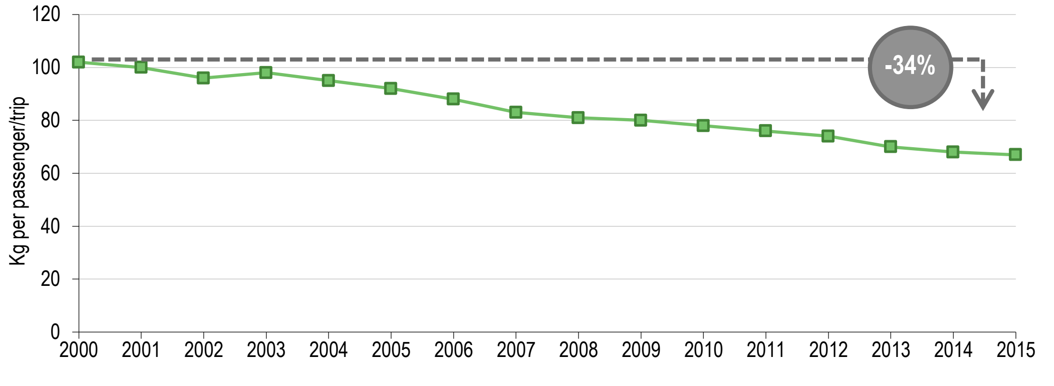
Fuel efficiencies may temper CAO's growth slightly

We believe there are two issues that mean CAO's volumes will grow slightly slower than RPKs:

- **Improvements in Chinese air traffic control systems.** Chinese aircraft have historically burnt twice as much fuel per passenger mile as their counterparts in Europe because of inefficiencies in Chinese air traffic control systems. The military controls nearly all of the airspace between Chinese destinations and aircraft have to line up for chances to pass through the narrow military-authorised corridors. Aircraft in Chinese airspace have to fly indirect routes, equivalent to going all around a city on a ring road. Also, military restrictions often keep jets at 10,000-15,000ft for extended periods, rather than 30,000ft cruising, as is the norm in civil aerospace. The lower an aircraft flies the more fuel it burns because an aircraft generates more drag if it flies below 20,000ft. This problem is gradually being solved by better GPS systems and the military relinquishing some control of the airspace.
- **More fuel-efficient aircraft.** New aircraft are 70% more fuel efficient than 40 years ago, and 20% better than 10 years ago. The aircraft and engine manufacturers continually focus on reducing fuel burn (and hence CO_2 emissions) because it saves the airlines money and is

better for the environment. Fuel is an airline's single biggest expense. Airbus estimates that at $50/barrel it is 17% of costs for an average airline, rising to 30% at $100/barrel. It is a much higher proportion for low-cost carriers. Exhibit 8 shows that fuel consumption per passenger has fallen 34% in the past 15 years and we expect this trend to continue, albeit at a slower rate.

Exhibit 8: Fuel consumption (average kilograms per passenger per trip) 2000-15



Source: ICAO, IATA, Airbus

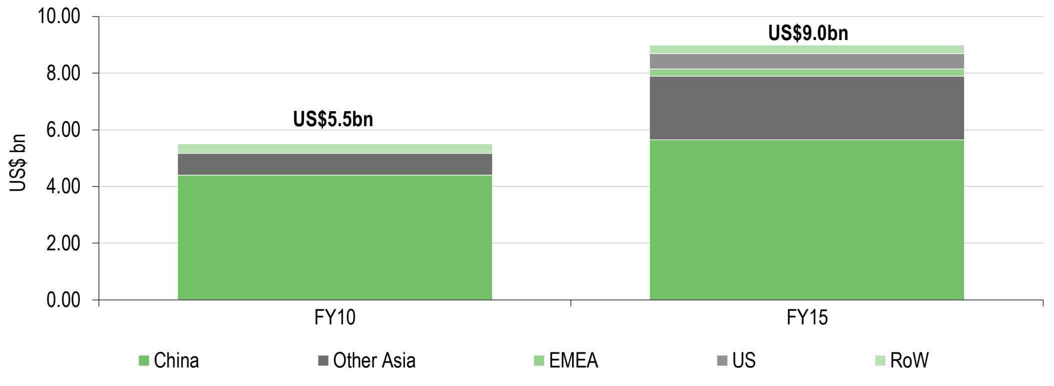
Other growth opportunities

CAO's development strategy, known as Vision 2020 (see Exhibit 5 on page 6), makes it clear that CAO sees itself developing hand in hand with the Chinese government's "One Belt, One Road" policy. It wants to benefit from development of not only airports, but also roads, railways and ports by increasing its supply locations and volumes, to become a "global top tier integrated fuel supplier". CAO has a strong net cash position and we therefore expect the group to pursue acquiring assets, which are synergistic to its jet fuel supply and trading business.

We expect the Aviation Marketing business to expand into more airports outside mainland China and Other Oil Products to continue to pursue its diversification strategy, particularly in building structural advantages for its fuel oil business.

The current management team has successfully diversified CAO's geographic customer base. In FY10, 80% of revenues came from China compared to 52.5% in FY15 (see Exhibit 9). However, only 12.3% of revenues came from outside Asia in FY15 (6% from the US in FY15, 2.8% from Europe and 3.5% from Australia), so there should be the potential to grow international revenues.

Exhibit 9: CAO revenue development 2010-15 by geography



Source: CAO 2016 AGM presentation

Longer term, we see an opportunity for CAO in alternative sources of jet fuel. China is the focus for efforts by Boeing (in partnership with the Chinese government) to extract fuel from more efficient biological sources. It has been successfully proved that algae produce hydrocarbons, which can be converted to a form of oil. However, the trick is growing algae and harvesting their oil at a large enough scale and a low enough cost to be a plausible substitute for regular petroleum. Boeing has calculated that you would need algae facilities the size of Belgium and an oil price of $90/barrel to make algae-based fuel economical once production techniques are improved. As a part state-owned company, CAO is likely to be at the forefront of any green fuel developments.

Management

CAO is a very different company from 2004, when the CEO's poor trading strategy nearly bankrupted the business. The current CEO, Mr Meng Fanqiu has been in the post for almost 10 years and has a background in the Chinese civil aviation industry. He has worked extremely closely with executives from BP, who came on board in 2005. BP was one of CAO's biggest creditors in 2004, was owed $32m for fuel supplies and had a vested interest in righting the company. BP has two members on the nine-person CAO board, and for the past decade CAO's head of trading and head of risk management have both been secondees from BP. CAO's sophisticated risk management policy has been devised by BP. It is detailed in the Annual Report and in this risk management presentation.

A new chairman, Dr Xi Zhengping was appointed in February 2017, replacing Mr Lin Wanli, who had been in place for two years as part of standard rotation at Chinese state owned enterprises (SOs). CAO's non-executive chairman is always a director from its parent company, CNAF. The Annual General Meeting on 18 April will be Dr Zhengping's first opportunity to address the investment community.

Sensitivities

Investors should be aware of several issues that could influence the performance of the company and the share price. Most are high level, but some relate to the nature of the business, although management has adopted a rigorous risk management regime since the derivatives speculation scandal that damaged the company over a decade ago.

- **Oil price and other macro issues:** while the trading operations tend to be inherently risky, a movement in oil prices is generally a managed event through trading policy, risk control and hedging. Foreign exchange exposure exists as CAO is based in Singapore, accounts in US$ and has a large associate income from China. Principal exposure is to the US$ versus the Chinese renminbi.
- **Technical issues:** the 20% stake owned by BP appears to be a strategic investment, but there are a host of examples where apparently committed involvement has been quickly undone. We also note that BP is currently divesting a number of its assets. However, the company has been working with CAO for 10 years, allowing it to develop its own risk management policies, which would endure even if BP were no longer a shareholder. Although a technical overhang, if BP were to sell its stake it could improve liquidity. In addition, the company has a controlling state-owned shareholder, which means the minority free float stakeholders have little control on strategic or financial decisions made by the company. In this regard, however, we would note the adoption of a progressive earnings-related payout ratio in 2015 as a sign of consideration for minority shareholders.
- **Political and regulatory risks:** CAO's main business operates in a centrally planned economy, where changes to policy and regulation can be far reaching and imposed quite rapidly. The state clearly regards aviation as a key element of its economic growth plan. China is exploring changes to its jet fuel market to a more demand-driven competitive pricing regime by 2020. CAO currently supplies its imported jet fuel on a cost-plus, fixed-price barrel basis,

which could be altered if such a regime were introduced. However, CNAF, CAO's parent company, which grants CAO its jet fuel import licence, owns the refuelling assets and infrastructure at all of China's airports, providing a very high barrier to entry for any new competitors. In addition, the growth of the transportation fuel market in China could lead to demand for more import licences to be awarded. The new Trump administration's policies may impact on global trade flows and industrial output, which could affect demand for oil products more generally.

- **Company-specific risks:** a large part of the company's activity is oil trading, which carries significant risk as the company seeks to fulfil its contracted physical supply obligations. Risk factors can be categorised as market, credit, operational and enterprise. Risk can be to the upside as well as to the downside, although hedging operations are designed to mitigate the volatility and scale. Since 2006, with the help of BP, a robust risk management structure has been formulated, constructed and implemented, with a multi-tiered boardroom to operational level system of checks, balances and accountability.

Valuation

While CAO is quoted in Singapore, exposure to the Chinese air transport market presents both an opportunity and a risk for investors. The opportunity is the rapid growth of air travel, but the potential for disruption to performance due to policy changes in China must be considered. Today the opportunity would appear to far outweigh the risk, despite the relatively restricted free float.

CAO has few direct peers as competition often comes from much larger international oil companies, banks and more general commodity traders. The closest comparison is with World Fuel Services, which currently trades at a near 58% premium to CAO. In our opinion, this is unwarranted given the latter's unique exposure to the fast growing Chinese aviation market. However, the core CAO operations can be valued on a DCF basis given the relative stability provided by being a physical jet fuel supplier as well as a trader. The paper trading of oil contracts is limited to 10% of total trade volume, with 90% backed by physical contracts substantially de-risking the activity. In addition, the cost plus per barrel nature of the sole source import supply contract to China provides further stability as well as a gross margin premium return compared to normal trading activity. Using our calculated WACC of 10.4% implies a core CAO valuation (including US$187m FY16 year-end net cash) of US$0.80 (S$1.12), to which must be added a value for the associates and joint ventures.

With 68% of operating profit and >100% of operating cash flow in FY16 generated by the five associate and joint venture entities these must be valued appropriately. Applying net income at the group FY17 P/E multiple of 9.2x is conservative in our view given peer multiples and growth rates. Thus we consider two cash-based valuations of the dividend stream to provide a composite value, which currently stands at US$0.64 (S$0.90) per share. Our total DCF-based estimate of fair value for CAO overall is thus currently US$1.44 (S$2.02) per share, a modest premium to the current share price.

The average of our various peer and cash based valuations methodologies is US$1.45 (S$2.04) per share, suggesting continued potential for the shares despite the performance in 2016.

Peer group comparison

The direct peer group for CAO is quite limited as comparators tend to be parts of large international oil companies or banks, or larger more general commodity trading houses, both quoted or unquoted. World Fuel Services in the US is probably the closest match and currently trades on a 13.6x FY17e P/E multiple. CAO currently trades on 9.2x Edison FY17e EPS (9.7x consensus).

While some of the disparity to peers might be justified by global scale, we would suggest the exposure to Chinese growth warrants a closure of the relative rating.

We have also compared CAO to an air transport peer group including Chinese airports, as well as Asian airlines and comparable oil supply companies. Overall these trade on an FY17e P/E of 14.1x, which again suggests some potential for CAO investors

Capped DCF valuation

As we expect CAO's wholly owned trading and supply activity to continue to grow for many years to come, we use our capped DCF methodology. This values cash flows in the longer term as a perpetuity, rather than allowing for any growth in the terminal value. NPV is calculated at a WACC of 10.4%, which is a modest premium to a weighted Chinese and Singapore country WACC, to reflect the reliance on the Chinese aviation market, especially for valuing the associate.

The valuation is dominated by the input for the associates that provide a large proportion of annual cash flow. With the dividend likely to grow over time, we see three valuation methods as appropriate.

a) Applying a modest FY17e P/E multiple of 9.2x would imply a value of US$554m (S$785m) for CAO's share of the associates. A one point move in the P/E applied to the associates would affect the overall CAO group value by US$0.07(S$0.10) per share.

b) Using the FY16 dividend receipts and valuing them as a perpetuity at WACC implies a value of US$484m (S$681m).

c) Using a 5% growth annuity calculation for six years with a zero growth perpetuity thereafter would imply a value of US$606m (S$852m).

Adding these to the core enterprise DCF value and the current net cash balances implies a valuation per CAO share of (a) US$1.44 (S$2.03), (b) US$1.36 (S$1.91) and (c) US$1.50 (S$2.11). Taking an average of these gives a value of US$1.44 (S$2.01) per share, which also suggests an opportunity for investors. The sensitivity of the calculation to differing WACC and terminal growth assumptions is reflected in Exhibit 10 below.

Exhibit 10: CAO average DCF value sensitivity to changes in WACC and terminal growth

WACC	8%	9%	10%	11%	12%	13%	14%	15%
Terminal growth rate								
0%	1.78	1.62	**1.48**	1.38	1.29	1.21	1.15	1.09
1%	1.87	1.68	1.54	1.42	1.32	1.24	1.17	1.11
2%	2.00	1.77	1.60	1.47	1.36	1.27	1.20	1.13
3%	2.17	1.89	1.69	1.53	1.41	1.31	1.23	1.16

Source: Edison Investment Research estimates: Note: Core DCF is calculated at a WACC of 10.4%.

Exhibit 11: Valuation methodology summary

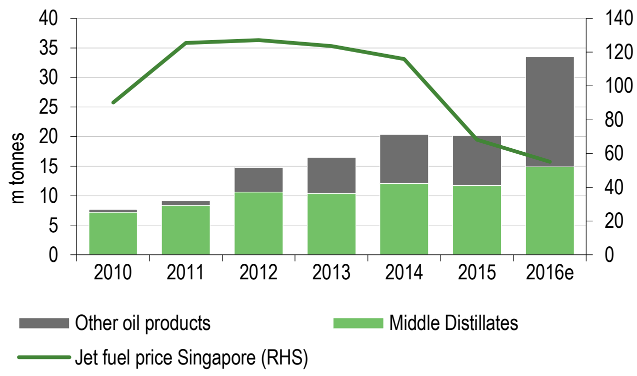
Valuation basis (US$m)	EV	Cash	JVs	Market cap	Value per share US$	Value per share S$
Current valuation FY17 P/E 9.2x	111	187	637	936	1.09	1.53
FY17 P/E of World Fuel Service (13.6x)	196	187	818	1,201	1.40	1.96
FY17 P/E of peer group (14.1x)	433	187	702	1,322	1.54	2.16
DCF (a)	499	187	554	1,240	1.44	2.03
DCF (b)	499	187	484	1,171	1.36	1.91
DCF (c)	499	187	606	1,293	1.50	2.11
Average					**1.45**	**2.04**

Source: Bloomberg data, Edison Investment Research estimates. Note: Priced at 23 February 2017.

Financials

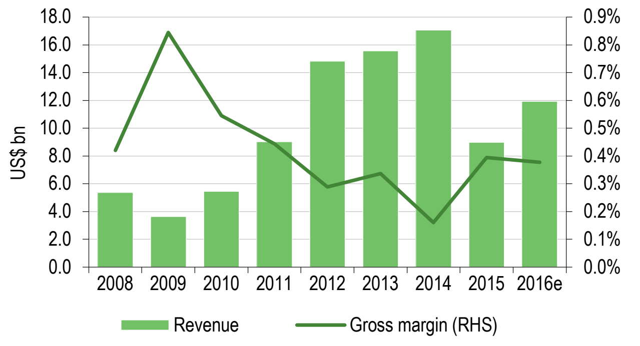
Revenues are generated principally by the supply and trading activities of CAO. Split between two divisions, Middle Distillates (primarily jet fuel) and Other Oil Products, the revenue performance has fluctuated dramatically with the oil product prices in recent years. Oil volumes have continued to grow significantly since 2010, with growth in jet fuel supply both to China and international markets contributing to increased volumes. The growth of activity in other oil products has also grown strongly from a standing start in 2008, with a very strong rise in FY16 as the company extended its supply of crude oil to China and of fuel oil to the Middle East

Exhibit 12: CAO volumes vs jet fuel price



Source: Company reports, Edison Investment Research

Exhibit 13: CAO revenues and gross profit margin



Source Company reports, Edison Investment Research

Revenues suffered from the sharp fall in fuel prices seen in 2015, which affected both jet fuel and other oil products. The pace of reduction slowed on average in 2016 and spot prices have stabilised into 2017. Gross margin for the Middle Distillates area has remained relatively robust through this decade, with the cost plus a fixed contribution per barrel for oil supplied into China acting as both an enhancement and a stabilising influence. The activity's gross margin has ranged from 0.24% in 2014 to 0.58% in 2010. The gross margin in FY16 was 0.54% (FY15 0.53%). Low gross margins are typical of this kind of trading activity. The Other Oil Products area has been more variable, but since suspension of petrochemical operations in 2015 a move into the black appears sustainable, given the increased scale of the activity. It produced a modest positive margin of 0.06% in FY16, having generated losses in the previous two years.

Exhibit 14: Contribution from associates and JVs (CAO share)

Year to December (US$m)		2014	2015	2016e	2017e	2018e
SPIA	Revenue	1166.55	775.49	1023.65	1126.02	1238.62
	Net Profit	41.87	38.88	60.64	65.31	71.84
	Net Margin	3.6%	5.0%	5.9%	5.8%	5.8%
	Dividend	32.41	34.53	48.51	52.25	57.47
	Payout ratio	77.4%	88.8%	80.0%	80.0%	80.0%
TSN-PEKCL	Revenue	8.75	9.46	11.35	11.35	11.35
	Net Profit	1.63	2.24	2.18	2.84	2.84
	Net Margin	18.6%	23.7%	19.2%	25.0%	25.0%
	Dividend	2.74	2.70	2.0	2.6	2.6
	Payout ratio	168.2%	120.9%	90.0%	90.0%	90.0%
Others	Net Profit	-0.31	1.18	3.55	5.5	6.12
	Dividend	0.0	0.0	0.0	0.0	0.0
	Payout ratio	0.0%	0.0%	0.0%	0.0%	0.0%

Source: CAO reports, Edison Investment Research estimates

The development of the two main associates is a reflection of the growth experienced by airports in China which they serve. This is reflected in the growth in passenger numbers travelling through the airport, which provide a proxy for fuel demand, although the fall in global jet fuel prices clearly influences revenue. Whilst SPIA transacts in US dollars, it pays its dividend to CAO in renminbi in the second half of the following year and therefore the devaluation of the renminbi affects translation of performance into US dollars, CAO's accounting currency.

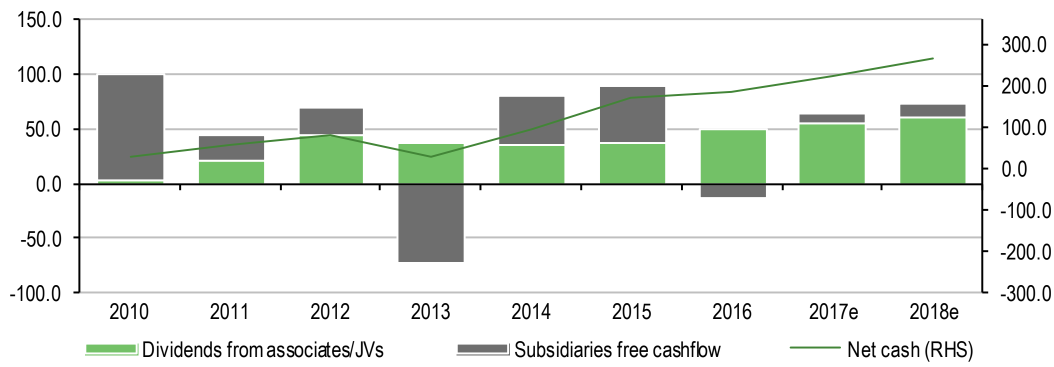
Exhibit 15: Chinese airport passenger numbers 2001-2016 (11 months)

Source: CAAC

As Exhibit 15 shows, Shanghai Pudong International has been one of the fastest growing airports in the world and this is set to continue with the addition of a fifth runway due to become operational this year. CAO's exposure through its 33% stake in SPIA looks set to grow rapidly. TSN PEKCL, which operates the pipeline servicing Beijing Capital and Tianjin Binhai also appears to be strongly underpinned by the development of air traffic at these hubs.

Cash flow generation for the group remains strong with a robust operational performance for the past decade, excepting 2013. Very low capital expenditure requirements and the strong stream of associates' dividends have seen net cash develop strongly through the last decade. The company currently carries $100m of short-term debt. Gross cash at the end of FY16 was US$287m.

Exhibit 16: CAO group free cash generation and net cash balances (US$m)



Source: Company reports, Edison Investment Research

While we have adopted a cautious stance towards operational cash development, this may prove to be conservative given the historic performance. Nevertheless, the strength of the balance sheet supports both the expansionary ambition of the group, together with the now established progressive dividend policy for shareholders.

Exhibit 17: Financial summary

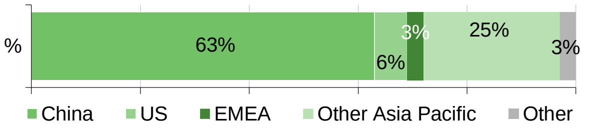
US$m	2014	2015	2016	2017e	2018e
Year end 31 December	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS					
Revenue	17,061	8,987	11,703	13,232	14,918
Cost of Sales	(17,034)	(8,952)	(11,659)	(13,184)	(14,864)
Gross Profit	27.4	35.4	44.0	48.2	53.7
EBITDA	14.7	25.9	30.2	35.2	41.4
Operating Profit (before amort. and except.)	13.9	25.0	29.5	34.3	40.5
Intangible Amortisation	(0.7)	(0.7)	(0.5)	(0.1)	(0.1)
Net income from associates	38.3	38.6	60.5	69.6	76.3
Exceptionals	0.8	(0.8)	(0.3)	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0
Operating Profit	52.3	62.2	89.2	103.8	116.7
Net Interest	(2.8)	(0.7)	0.3	(0.6)	0.1
Profit Before Tax (norm)	49.4	63.0	90.3	103.3	116.9
Profit Before Tax (FRS 3)	49.6	61.5	89.5	103.1	116.8
Tax	(0.5)	(0.4)	(0.6)	(1.0)	(1.2)
Profit After Tax (norm)	49.0	62.6	89.7	102.2	115.8
Profit After Tax (FRS 3)	49.1	61.1	88.8	102.1	115.6
Average Number of Shares Outstanding (m)	860.2	860.2	860.2	860.2	860.2
EPS - normalised (c)	5.7	7.3	10.4	11.9	13.5
EPS - normalised and fully diluted (c)	5.7	7.3	10.4	11.9	13.5
EPS - (IFRS) (c)	5.7	7.1	10.3	11.9	13.4
Dividend per share (c)	1.5	2.1	3.2	3.6	4.0
Gross Margin (%)	0.2	0.4	0.4	0.4	0.4
EBITDA Margin (%)	0.1	0.3	0.3	0.3	0.3
Operating Margin (before GW and except.) (%)	0.1	0.3	0.3	0.3	0.3
BALANCE SHEET					
Fixed Assets	279.3	273.7	288.2	306.9	328.1
Intangible Assets	2.4	1.8	1.6	1.7	1.7
Tangible Assets	6.8	6.2	5.7	5.1	4.7
Investments	270.1	265.6	281.0	300.1	321.7
Current Assets	1,099.4	571.9	1,056.2	916.2	1,030.4
Stocks	38.1	56.8	170.7	154.2	168.6
Debtors	823.1	296.0	316.0	330.8	361.8
Cash	94.3	170.5	287.3	225.1	268.7
Other	143.9	48.5	282.2	206.1	231.4
Current Liabilities	(819.0)	(246.7)	(688.4)	(495.6)	(549.9)
Creditors	(819.0)	(246.7)	(588.4)	(495.6)	(549.9)
Short term borrowings	0.0	0.0	(100.0)	0.0	0.0
Long Term Liabilities	(6.2)	(6.2)	(6.3)	(6.3)	(6.3)
Long term borrowings	0.0	0.0	0.0	0.0	0.0
Other long term liabilities	(6.2)	(6.2)	(6.3)	(6.3)	(6.3)
Net Assets	553.5	592.6	649.7	721.2	802.2
CASH FLOW					
Operating Cash Flow	85.9	92.7	37.8	65.9	76.6
Net Interest	(4.5)	(2.8)	(0.7)	0.3	(0.6)
Tax	(0.4)	(0.5)	(0.4)	(1.0)	(1.2)
Capex	(0.5)	(0.4)	(0.4)	(0.6)	(0.6)
Acquisitions/disposals	0.0	0.0	0.0	0.0	0.0
Financing	0.0	0.0	0.0	0.0	0.0
Dividends	(13.7)	(12.8)	(19.3)	(26.7)	(30.7)
Other	(0.4)	(0.1)	(0.4)	0.0	0.0
Net Cash Flow	66.6	76.2	16.8	37.8	43.5
Opening net debt/(cash)	(27.7)	(94.3)	(170.5)	(187.3)	(225.1)
HP finance leases initiated	0.0	0.0	0.0	0.0	0.0
Other	0.0	(0.0)	0.0	0.0	(0.0)
Closing net debt/(cash)	(94.3)	(170.5)	(187.3)	(225.1)	(268.7)

Source: Company accounts, Edison Investment Research

Contact details

8 Temasek Boulevard
#31-02 Suntec Tower Three
Singapore 03898
+65 6334 8979
www.caosco.com

Revenue by geography



Management team

Non-Executive Chairman: Dr Xi Zhengping

Currently a director and general manager of China National Aviation Fuel Group (CNAF), CAO's parent company. Prior to this, he was deputy general manager of China Non-ferrous Metal Mining (Group) Co. Dr Xi holds a Doctor of Engineering from Northeastern University of Technology with a major in physical chemistry of metallurgy and is a qualified senior engineer at the professor level. He was head of Shaanxi Provincial Department of Science and Technology from December 2010 to February 2013 and mayor of Weinan City, Shaanxi Province, from February 2013 to February 2015.

CEO: Meng Fanqiu

Prior to his current appointment, Mr Meng was the divisional director of Planning and Development at CNAF. He led the steering committee for the restructuring of China Aviation Oil Supply Corporation, which resulted in the formation of China National Aviation Fuel Corporation. Mr Meng was an official of the Civil Aviation Administration of China (CAAC) from 1991 to 2003 where he was directly involved in the drafting and enacting of the PRC Civil Aviation Law, the first law on civil aviation in the PRC. Mr Meng graduated from China University of Political Science and Law (he majored in International Economic Law) and holds a Master of Business Law from Renmin University of China. He is also a qualified legal attorney and a qualified corporate legal advisor in the PRC.

CFO: Wang Chunyan

Prior to joining CAO, Mr Wang was deputy head of the Financial Assets division at Shengli Petroleum Administrative Bureau, a subsidiary of SINOPEC. He began his career with Hekou Oil Production Plant, a subsidiary of Shengli Petroleum Administrative Bureau in 1993. He held several senior positions within the Financial Assets division of Shengli before his appointment as deputy head in May 2006. Mr Wang is a qualified senior international finance manager and senior accountant. He holds a Bachelor's Degree in economics, majoring in accountancy from Changchun Taxation College, China.

Chief Operating Officer: Jean Teo

Mrs Teo has more than 10 years of experience in the oil trading industry, mainly with BP Singapore. She held various roles in BP, including lead trader of light distillates, and was seconded to the position of head of trading of CAO from January 2008 to August 2010. Prior to joining CAO, she was a senior trader of distillates products at Cargill International Pte Ltd. Jean Teo holds a master of business administration (finance) from Manchester Business School, United Kingdom, and a bachelor of engineering, chemical (honours) from the National University of Singapore.

Principal shareholders	(%)
China National Aviation Fuel Group Corporation (CNAF)	51.3%
BP Investments Asia	20.2%
Public	28.5%

Companies named in this report

World Fuel Services (INT), BP (BP), Airbus (AIR)

Frankfurt +49 (0)69 78 8076 960
Schumannstrasse 34b
60325 Frankfurt
Germany

London +44 (0)20 3077 5700
280 High Holborn
London, WC1V 7EE
United Kingdom

New York +1 646 653 7026
245 Park Avenue, 39th Floor
10167, New York
US

Sydney +61 (0)2 8249 8342
Level 12, Office 1205, 95 Pitt Street
Sydney, NSW 2000
Australia