

## Sky and Space Global

## Communications

SAS-ASX A\$ 0.14 TARGET PRICE A\$0.45

SPECULATIVE BUY

Sky & Space Global Ltd. is a company that aims to engage in deployment and operation of nano-satellites in orbit to provide global communication infrastructure. The Company was founded by three founders Meir Moalem, Meidad Pariente and Yonatan Shrama.

David Fraser  
+61 2 9226 0092  
[david.fraser@appsecurities.com.au](mailto:david.fraser@appsecurities.com.au)



## Sky &amp; Space Global – Nano-satellite company set to revolutionise equatorial communications

## Sky and Space Global (SAS)

SAS aims to provide low cost, nano-satellite communication coverage on an anywhere to everywhere base with relatively low maintenance costs. Furthermore, SAS develops proprietary network management software systems that enable satellites to autonomously manage deployment, orbital control and M2M communication with little interference from ground stations. This reduces capital expenditure, launch and operating costs and will allow SAS to provide cost effective solutions to the telecommunication and international transport industries.

## Investor return

Based on our price target, SAS offers investors a total stock return of over 200%. **If we assume that SAS's revenue in FY22F, on 200 satellites, is at the top end of the company's guidance range (A\$1,000m) then the stock in our view could be valued well over A\$2.50.**

The three key issues for the stock in our view are technology, cost and the size of the potential revenue. SAS continues to sign contracts that are providing investors with more certainty around the capital cost of the planned constellation going forward. What remains as the key question is the quantum, timing and the risk associated with the potential revenue streams. Once SAS starts to sign contracts with reputable credit worthy telecommunications companies the earnings outlook will de-risk resulting in higher revenue forecasts and lower discount rates being applied to the future cash flows resulting in higher valuations.

## A capital raise in 2018 likely in our view

With a forecast capital spend of A\$65m in FY19F and cash on the balance sheet of A\$10m as at FY17, we believe SAS will need to come to market in 2018. We have assumed an A\$50m capital raise in our FY18F forecasts. This is unlikely to occur before SAS has signed some meaningful telecommunication commercial agreements with service providers in the equatorial regions.

## Valuation

We have a 12 month forward "base case" discounted cash flow valuation for SAS of \$0.45; thus, our price target of \$0.45.

This is based on a 1.0m customer base spread evenly over voice and data, messaging and machine to machine (M2M). We have assumed plans are priced at a 50% discount to the lowest pricing being offered by competitors in the relevant services. This translates to a revenue forecast of A\$206m in FY22F that is ~66% below managements "bottom of the range" guidance of A\$600m.

Given it will not be until 2020 that the proposed 200 nano-sats will be fully operational, our forecasts have a significant amount of risk associated with them. We also suspect we may be being unduly conservative.

**Thus, we rate an investment in SAS at this stage as Speculative but believe the potential return outweighs the risk.**

## Company Data

Shares outstanding (m)	1,695
Price (\$)	0.140
Market Capitalisation (\$m)	237.4
Free Float (%)	42.2%
Free Float Market Capitalisation (\$m)	100.2
12 month low (\$)	0.07
12 month high (\$)	0.28
Average daily volume (3 month) ('000)	

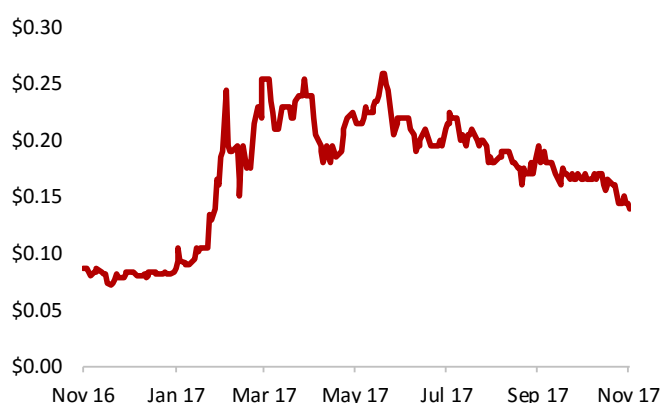
Data Source: FactSet

## Earnings Summary (A\$m)

Year end June	FY17	FY18F	FY19F	FY20F
Sales revenue	0.0	2.6	26.3	86.1
EBITDA	(14.9)	(5.5)	14.0	69.7
PBT	(14.8)	(6.1)	(2.1)	37.1
Underlying NPAT	(14.8)	(7.8)	(4.5)	28.0
Reported NPAT	(14.9)	(7.8)	(4.5)	28.0
Reported EPS (c)	(1.1)	(0.5)	(0.2)	1.4
Underlying EPS diluted (c)	(1.1)	(0.5)	(0.2)	1.3
Underlying P/E (x)	(34.5)	(28.7)	(64.8)	10.4
DPS (c)	0.0	0.0	0.0	1.0
Payout ratio (%)	0%	0%	0%	50%
Franking (%)	0%	0%	0%	0%
Dividend yield (%)	0.0%	0.0%	0.0%	7.1%
Gross Yield (%)	0.0%	0.0%	0.0%	7.1%

Data Source: Company, APP Securities

## Share Price Performance



Source: FactSet

APP Securities contributes all company estimates to Bloomberg, Thomson Reuters, FactSet and Capital IQ.

Sky and Space Global						SAS-ASX					
<b>Summary</b>						<b>Profit and Loss A\$m</b>					
<b>Recommendation</b>	<b>Speculative Buy</b>					<b>FY16</b>	<b>FY17</b>	<b>FY18F</b>	<b>FY19F</b>	<b>FY20F</b>	
<b>Price (\$)</b>	<b>0.14</b>					<b>Sales revenue</b>	<b>0.0</b>	<b>0.0</b>	<b>2.6</b>	<b>26.3</b>	<b>86.1</b>
<b>Target Price (\$)</b>	<b>0.45</b>					Other operating costs	(5.8)	(14.9)	(8.2)	(12.3)	(16.4)
Upside (Downside) (%)	221.4%					<b>EBITDA</b>	<b>(5.8)</b>	<b>(14.9)</b>	<b>(5.5)</b>	<b>14.0</b>	<b>69.7</b>
Gross Yield (%)	0.0%					D&A	0.0	0.0	(0.7)	(16.3)	(32.3)
<b>Total Stock Return (%)</b>	<b>221.4%</b>					<b>EBIT</b>	<b>(5.8)</b>	<b>(14.9)</b>	<b>(6.2)</b>	<b>(2.3)</b>	<b>37.3</b>
Shares (m)	1,695					Net interest	0.0	0.1	0.1	0.3	(0.2)
Diluted shares(m)	1,721					<b>PBT</b>	<b>(5.8)</b>	<b>(14.8)</b>	<b>(6.1)</b>	<b>(2.1)</b>	<b>37.1</b>
Market Capitalisation (\$m)	237.4					Tax	0.0	0.0	(1.7)	(2.4)	(9.1)
Free Float Market Capitalisation (\$m)	100.2					Profit	(5.8)	(14.8)	(7.8)	(4.5)	28.0
<b>Description</b>						Minority interests	0.0	0.0	0.0	0.0	0.0
Sky & Space Global Ltd. is a company that aims to engage in deployment and operation of nano-satellites in orbit to provide global communication infrastructure. Its core business is to construct a communication infrastructure based on nano-satellite technology and develop software systems that will deploy, maintain orbit control and handle communication code between each of the nano-satellites to provide global coverage once a sufficient global network of nano-satellites is deployed. The company was founded by Mr. Meidad Pariente and is headquartered in Perth, Australia.						<b>Underlying NPAT</b>	<b>(5.8)</b>	<b>(14.8)</b>	<b>(7.8)</b>	<b>(4.5)</b>	<b>28.0</b>
<b>Valuation</b>						Non-recurring items	(0.0)	(0.1)	0.0	0.0	0.0
<b>Discounted cash flow (12 month forward)</b>	<b>\$0.45</b>					<b>Reported NPAT</b>	<b>(5.8)</b>	<b>(14.9)</b>	<b>(7.8)</b>	<b>(4.5)</b>	<b>28.0</b>
<b>Financial Metrics</b>						<b>Cashflow A\$m</b>					
	<b>FY16</b>	<b>FY17</b>	<b>FY18F</b>	<b>FY19F</b>	<b>FY20F</b>	<b>FY16</b>	<b>FY17</b>	<b>FY18F</b>	<b>FY19F</b>	<b>FY20F</b>	
Reported EPS (c)	(1.7)	(1.1)	(0.5)	(0.2)	1.4	Operating EBITDA	(5.8)	(14.9)	(5.5)	14.0	69.7
<b>Underlying EPS (c)</b>	<b>(1.7)</b>	<b>(1.1)</b>	<b>(0.5)</b>	<b>(0.2)</b>	<b>1.4</b>	Change in working capital	0.1	0.2	(0.2)	(0.0)	0.0
Underlying EPS diluted (c)	(0.8)	(1.1)	(0.5)	(0.2)	1.3	Net interest	0.0	0.1	0.1	0.3	(0.2)
<b>Underlying P/E (x)</b>	<b>(10.6)</b>	<b>(33.9)</b>	<b>(28.3)</b>	<b>(64.0)</b>	<b>10.3</b>	Tax paid	0.0	0.0	0.0	0.0	(4.9)
<b>Underlying P/E (diluted) (x)</b>	<b>(21.5)</b>	<b>(34.5)</b>	<b>(28.7)</b>	<b>(64.8)</b>	<b>10.4</b>	Other	5.3	11.4	0.0	0.0	0.0
<b>DPS (c)</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>Operating cashflow</b>	<b>(0.3)</b>	<b>(3.3)</b>	<b>(5.7)</b>	<b>14.3</b>	<b>64.6</b>
Payout ratio (%)	0.0%	0.0%	0.0%	0.0%	50.0%	Capital expenditure	(0.3)	(4.9)	(4.8)	(64.7)	(66.0)
<b>Franking (%)</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	Net Divestment/(Acquisitions)	0.0	0.0	0.0	0.0	0.0
Dividend yield (%)	0.0%	0.0%	0.0%	0.0%	7.1%	Other	0.2	0.0	0.0	0.0	0.0
<b>Gross Yield (%)</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>7.1%</b>	<b>Investing cashflow</b>	<b>(0.1)</b>	<b>(4.9)</b>	<b>(4.8)</b>	<b>(64.7)</b>	<b>(66.0)</b>
Book value (c)	0.3	0.9	2.6	2.5	3.6	Change in Debt	0.0	0.0	0.0	9.2	7.6
Net Tangible Assets (c)	0.3	0.9	2.6	2.5	3.6	Change in Equity	4.6	15.5	50.0	0.0	0.0
<b>Price to Book value (x)</b>	<b>67.7</b>	<b>39.8</b>	<b>5.3</b>	<b>5.5</b>	<b>3.9</b>	Dividends paid	0.0	0.0	0.0	0.0	(10.3)
Price to NTA (x)	67.7	39.8	5.3	5.5	3.9	Other	(0.3)	(1.2)	(3.8)	0.0	0.0
<b>Cash Conversion</b>	<b>n/m</b>	<b>n/m</b>	<b>n/m</b>	<b>100%</b>	<b>100%</b>	<b>Financing cashflow</b>	<b>4.2</b>	<b>14.4</b>	<b>46.2</b>	<b>9.2</b>	<b>(2.7)</b>
Op. cashflow per share (c)	(0.1)	(0.6)	(0.7)	(2.4)	(0.1)	Net cashflow	3.8	6.2	35.8	(41.2)	(4.1)
<b>Price to OCFS (x)</b>	<b>(373)</b>	<b>(156)</b>	<b>(39.5)</b>	<b>20.4</b>	<b>4.5</b>	<b>Balance Sheet A\$m</b>					
Interest cover (EBIT/Net int) (x)	n/m	n/m	n/m	n/m	n/m	<b>FY16</b>	<b>FY17</b>	<b>FY18F</b>	<b>FY19F</b>	<b>FY20F</b>	
Underlying ROE (%)	n/m	n/m	n/m	-8.3%	43.8%	Cash and Deposits	3.9	9.9	45.8	4.6	0.5
Underlying ROA (%)	n/m	n/m	n/m	-0.9%	10.6%	Receivables	0.1	0.4	0.7	5.3	17.2
<b>Multiples</b>						Financial assets	0.0	0.0	0.0	0.0	0.0
	<b>FY16</b>	<b>FY17</b>	<b>FY18F</b>	<b>FY19F</b>	<b>FY20F</b>	Other Current Assets	0.0	0.0	0.0	0.0	0.0
Net debt	(3.9)	(9.9)	(45.8)	4.7	16.3	<b>Total Current Assets</b>	<b>3.9</b>	<b>10.3</b>	<b>46.4</b>	<b>9.8</b>	<b>17.7</b>
Market Equity (Y/E)	221.2	581.6	287.4	287.4	287.4	PPE	0.1	4.1	8.2	56.5	90.2
<b>EV</b>	<b>217.3</b>	<b>571.7</b>	<b>241.6</b>	<b>292.0</b>	<b>303.7</b>	Deferred tax assets	0.0	o	0.0	0.0	0.0
<b>EV/EBITDA (x)</b>	<b>(37.7)</b>	<b>(38.5)</b>	<b>(43.7)</b>	<b>20.8</b>	<b>4.4</b>	Intangibles (incl. goodwill)	0.1	1.1	1.1	1.1	1.1
EV/EBIT (x)	(37.7)	(38.5)	(38.9)	(125.0)	8.1	Other	0.0	0.0	0.0	0.0	0.0
<b>Growth Rates</b>						<b>Total Non Current Assets</b>	<b>0.3</b>	<b>5.2</b>	<b>9.3</b>	<b>57.6</b>	<b>91.3</b>
	<b>FY16</b>	<b>FY17</b>	<b>FY18F</b>	<b>FY19F</b>	<b>FY20F</b>	<b>Total Assets</b>	<b>4.2</b>	<b>15.5</b>	<b>55.7</b>	<b>67.5</b>	<b>109.0</b>
Revenue growth (%)	n/m	n/m	n/m	n/m	227%	Payables	0.2	0.6	0.7	5.3	17.2
<b>EBITDA growth (%)</b>	<b>n/m</b>	<b>n/m</b>	<b>n/m</b>	<b>n/m</b>	<b>397.2%</b>	Interest Bearing Debt	0.0	0.0	0.0	0.0	0.0
<b>NPAT growth (%)</b>	<b>n/m</b>	<b>n/m</b>	<b>n/m</b>	<b>n/m</b>	<b>-723.6%</b>	Other	0.0	0.0	0.0	0.0	0.0
Underlying EPS (dil) growth (%)	n/m	n/m	n/m	n/m	n/m	<b>Total Current Liabilities</b>	<b>0.2</b>	<b>0.6</b>	<b>0.7</b>	<b>5.3</b>	<b>17.3</b>
						Interest Bearing Debt	0.0	0.0	0.0	9.2	16.8
						Long Term Provisions	0.0	0.0	0.0	0.0	0.0
						Deferred Tax	0.0	0.0	0.0	0.0	0.0
						<b>Total Non Current Liabilities</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>9.2</b>	<b>16.8</b>
						<b>Total Liabilities</b>	<b>0.2</b>	<b>0.6</b>	<b>0.7</b>	<b>14.5</b>	<b>34.1</b>
						Shareholders Equity	9.5	30.6	80.6	80.6	80.6
						Retained Earnings/(Losses)	(5.8)	(20.6)	(28.4)	(32.9)	(18.9)
						Reserves/Other	0.1	3.3	2.8	5.2	13.2
						Minority Interests	0.0	0.0	0.0	0.0	0.0
						<b>Total Equity</b>	<b>4.2</b>	<b>14.9</b>	<b>55.0</b>	<b>52.9</b>	<b>74.9</b>

## Investment Case – Yet another disrupter

In our view, Sky and Space Global (SAS) will provide customers with an attractive alternative option in the satellite communication industry given its low capital cost of deployment compared with existing players.

SAS plans to earn revenue from two main sources:

- Wholesale revenue from direct customer sales – regional telecommunications providers, global corporates, airline/shipping/infrastructure companies, governments;
- Fee for services per bandwidth through reseller agreements – retail customers via deals with global Telcos.

SAS holds an advantage in the complete system and not only just the satellites themselves. The satellites, network, software, orbits, frequencies, customers and market access all collectively provide a first mover advantage to SAS in APP's view.

It is developing its own network management software, using specific orbits, SAS is licensing spectrum with the International Telecommunications Union (ITU), and has the advantage of being a "first mover".

Its nano-satellite technology will be upgraded constantly as it plans to replace 25% of the constellation on a yearly basis. This means that the services provided are always improving and more importantly will enable SAS to keep up with the market as it ultimately moves from 4G into 5G in the mid 2020's..

This in conjunction with the customer' base SAS is building will make it difficult for newcomers to become a commercial threat easily.

**Figure 1. The Pearls – SAS Constellation satellites**



*Source: Company data*

We have modelled the company and have applied in our view very conservative revenue assumptions. This, given the capital to construct the constellation has yet to be raised and the constellation has yet to be deployed.

Despite our FY22F revenue assumption being down 65% of managements low case scenario we can demonstrate a valuation of \$0.45 per share on a post equity raise diluted basis.

This gives investors a forecast return of over 200%.

Given it will not be until 2020 that the proposed ~200 nano-sats will be fully operational, our forecasts have a significant amount of risk associated with them.

**Thus, we rate an investment in SAS at this stage as Speculative but believe the potential return outweighs the risk**

## How have we modelled Sky and Space Global?

### What we needed to consider

SAS has provided the market with indicative revenue guidance of A\$600m-A\$1,000m once a full constellation of about 200 nano-satellites are in orbit and in operation forecast to be in 2020.

The key drivers to derive a forecast profit and loss are:

- Timing of nano-satellite deployment,
- Capital cost of nano-satellites,
- Cost of deploying nano-satellites which is forecast to be low due to the dedicated launches of clusters of satellites per launch,
- Customer numbers and customer split; i.e. number of M2M, text only, and voice and data customers,
- Plan pricing,
- Usage of plans; i.e. messages/month/customer; texts/month/customer; M2M messages/month/customer,
- Growth in customer numbers and customer usage, and
- Operating costs which are likely to be very low due to an autonomous network and satellites management in space.

Given the capital and deployment cost is well established now and operating costs are expected to be small in the context of the potential revenues, the key risk to our forecasts is the size of equity raise (\$ amount and new shares issued) and the derivation of the revenue line.

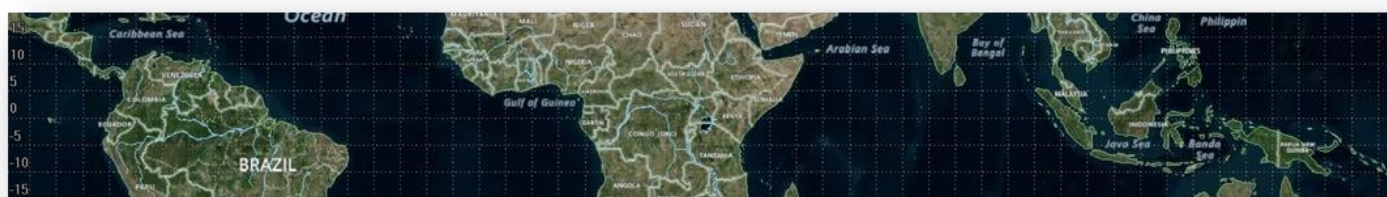
### Potential customer base

Over the equatorial region of the globe (key geographic focus for SAS will be Latin American, Asian and African regions) it is estimated that between 2.5b-3.5b people have limited access to reliable telecommunications infrastructure.

SAS estimate, of that number, 750m have no access.

**Very simplistically if SAS could pick up 1% it would amount to 7.5m customers. As noted below our base case assumption to justify a \$0.45 price target is 1.2m customers by FY22F.**

Figure 2. Sky and Space Global addressable market



Source: Company data

As a check to the reasonableness of our assumptions I would direct readers to the GSMA website. (GSMA represents the interests of nearly 800 mobile operators worldwide and more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors) .

<https://www.gsma.com/>

GSMA provide outlook forecasts for all aspects the global mobile market. Rather than reproduce its findings we just note a few of the GSMA forecasts below to demonstrate the size of the opportunity in just a number of SAS's target markets and the global market:

- Unique mobile subscribers in the Caribbean and Latin America are forecast to grow from 451m to 511m from 2016 to 2020

- Subscriber identity modules (SIM) connections in the Caribbean and Latin America are forecast to grow from 675m to 771m from 2016 to 2020
- Cellular M2M connections in the Caribbean and Latin America are forecast to grow from 25m to 53m from 2016 to 2020
- Operator revenue in Caribbean and Latin America is forecast to grow from \$74b to \$86.7b from 2016 to 2020
- Unique mobile subscribers in the West Africa are forecast to grow from 172m to 220m from 2016 to 2020
- SIM connections in West Africa are forecast to grow from 320m to 411m from 2016 to 2020
- Operator revenue in West Africa is forecast to grow from \$15.6b to \$16.5b from 2016 to 2020
- Unique mobile subscribers in the sub Saharan Africa are forecast to grow from 420m to 535m from 2016 to 2020
- SIM connections in sub Saharan Africa are forecast to grow from 731m to 942m from 2016 to 2020
- Mobile data traffic to grow at a CAGR of 66% from 2016 to 2020
- Operator revenue in sub Saharan Africa is forecast to grow from \$40b to \$43b from 2016 to 2020
- Unique mobile subscribers globally are forecast to grow from 4.7b to 5.6b from 2016 to 2020.

#### Sky and Space Global Model Assumptions

Key assumptions we have made to build forecast profit and loss and cash flow statements are:

- 67 nano-satellites deployed in FY19F, FY20F and FY21F. I.e. 200 deployed over three years with full deployment completed in 2020 at a cost of US\$150m. The SAS target is based on existing contracts with the satellite supplier and the launch provider, which are scheduled to support full deployment by mid 2020.
- These contracts are meeting the schedule so far (with a Preliminary Design Review (PDR) completed at GomSpace and Virgin Orbit about to perform the 1<sup>st</sup> launch early 2018). That leaves the company with over 6 months buffer on the timeline, so that by the end of FY20 the constellation is fully deployed. Also, revenues from a partial constellation are also very high, with only full 24/7 voice calls on northern/southern latitudes susceptible to deployment
- Cost of satellites forecast at US\$0.70m inflating at 2.0%, including construction and deployment costs. NB: Cost of launching the nano-satellites is capitalised in to the cost and depreciated over four years.
- **Satellites “killed” after four years and replaced so 50 new nano’s launched every year starting in FY22F. NB: We note this is a strong competitive advantage SAS will have over other satellite communications providers. That is, given the low capex cost, SAS will be able to replace the constellation every four years as new technology advances as we roll from 4G into 5G in the mid 2020’s.**
- Operating expenditure ramping up to A\$16m per annum in FY20F.
- Cash tax rate of 19% (SAS will be UK based for tax purposes). NB: UK tax is expected to drop to 17% by FY20, This, is also excluding any specific tax benefits for the space sector in UK that may arise.
- An assumption that once proven, SAS will raise debt in the back end of FY19 to fund the final roll out of the constellation rather than coming to the market again for additional equity.
- Forecast dividends potentially to commence in FY20F at a 50% payout ratio, if the current timetable is met. SAS have stated that it will target a higher payout ratio.
- Current shares on issue are 1,695m. We assume A\$50m is raised at \$0.15 per share (345m new shares). NB: Again; we note this is very conservative as we would expect SAS not to raise new equity until there is some positive news priced into the market and also not below the pricing of the last equity raise of A\$0.19 in May 2017.
- Additionally, we assume the ~25.5m performance rights outstanding will issue lifting the diluted shares on issue and thus by year end FY18F, the fully diluted number of shares on issue would be 2,054m.
- An AUDUSD cross rate of 0.760.

- **Key assumptions “revenue build up”**

As discussed there is a lot of driver in the revenue build up we have to make assumptions for.

Our base case assumes:

- Fully ramped up customer base in FY19F of 1.0m split evenly over evenly over voice and data, messaging and machine to machine (M2M).
- Customer growth at 5% declining over time to a terminal growth of 3.5% p.a.
- Plans are priced at a 50% discount to the lowest pricing being offered by competitors in the relevant services.
- Messages, texts and voice and data minutes per month per customer and growth in usage as per detailed below.

We note implied average revenue per user (ARPU) is ~US\$10.

**Figure 3. Sky and Space Global Revenue build up**

US\$	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
<b>M2M customers (m)</b>	<b>0.33</b>	0.35	0.37	0.38	0.40	0.42	0.44	0.46
Growth		5.0%	4.9%	4.7%	4.6%	4.4%	4.3%	4.1%
Number of messages / month	<b>60</b>	61	62	64	65	66	68	69
Growth		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Messages per year (m)	240	257	275	294	313	333	355	376
Growth		7.1%	6.9%	6.8%	6.6%	6.5%	6.3%	6.2%
Competition Min. Price per Message	<b>0.25</b>							
Discount	50.0%							
<b>Price per message</b>	<b>0.13</b>	<b>0.13</b>	<b>0.13</b>	<b>0.13</b>	<b>0.14</b>	<b>0.14</b>	<b>0.14</b>	<b>0.14</b>
Growth		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
<b>Revenues from M2M (US\$m)</b>	<b>30</b>	<b>33</b>	<b>36</b>	<b>39</b>	<b>42</b>	<b>46</b>	<b>50</b>	<b>54</b>
<b>Voice and Data Minutes Customers (m)</b>	<b>0.33</b>	0.35	0.37	0.38	0.40	0.42	0.44	0.46
Growth		5.0%	4.9%	4.7%	4.6%	4.4%	4.3%	4.1%
Minutes / customer / month	<b>30</b>	31	31	32	32	33	34	34
Growth		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total minutes (m)	120	129	137	147	157	167	177	188
Growth		7.1%	6.9%	6.8%	6.6%	6.5%	6.3%	6.2%
Competition Min. Price per Minute	<b>1.00</b>							
Discount	50.0%							
<b>Price per minute</b>	<b>0.50</b>	<b>0.51</b>	<b>0.52</b>	<b>0.53</b>	<b>0.54</b>	<b>0.55</b>	<b>0.56</b>	<b>0.57</b>
Growth		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
<b>Total Revenue from Voice &amp; Data (US\$m)</b>	<b>60</b>	<b>66</b>	<b>72</b>	<b>78</b>	<b>85</b>	<b>92</b>	<b>100</b>	<b>108</b>
<b>Texting Customers (m)</b>	<b>0.33</b>	0.35	0.37	0.38	0.40	0.42	0.44	0.46
Growth		5.0%	4.9%	4.7%	4.6%	4.4%	4.3%	4.1%
Messages / customer / month	<b>60</b>	62	63	65	66	68	70	71
Growth		2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Total text messages (m)	240	258	278	298	319	342	365	390
Competition Min. Price per Text	<b>0.25</b>							
Discount	50.0%							
<b>Price per text message</b>	<b>0.13</b>	<b>0.13</b>	<b>0.13</b>	<b>0.13</b>	<b>0.14</b>	<b>0.14</b>	<b>0.14</b>	<b>0.14</b>
Growth		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
<b>Total Revenues from Text (US\$m)</b>	<b>30</b>	<b>33</b>	<b>36</b>	<b>40</b>	<b>43</b>	<b>47</b>	<b>51</b>	<b>56</b>
<b>Total Revenues (US\$m)</b>	<b>\$120</b>	<b>\$131</b>	<b>\$143</b>	<b>\$156</b>	<b>\$170</b>	<b>\$185</b>	<b>\$201</b>	<b>\$218</b>
Total customers (m)	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4
<i>Implied ARPU</i>	<i>\$10</i>	<i>\$10</i>	<i>\$11</i>	<i>\$11</i>	<i>\$12</i>	<i>\$12</i>	<i>\$13</i>	<i>\$13</i>

Source: Company data, APP Securities

Figure 4. Sky and Space Global Satellite Deployment

US\$m	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
<b>Total nano-satellites year beginning</b>	<b>0</b>	<b>3</b>	<b>67</b>	<b>133</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>
New satellites	3	67	67	67					
Replacement					50	50	50	50	50
Satellites killed		(3)			(50)	(50)	(50)	(50)	(50)
<b>Total nano-satellites year end</b>	<b>3</b>	<b>67</b>	<b>133</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>
Average satellites	2	35	100	167	200	200	200	200	200
<b>Satellite Capex</b>									
Per satellite	<b>0.70</b>	0.71	0.73	0.74	0.76	0.77	0.79	0.80	0.82
Cost growth		<b>2.0%</b>	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
New & replacement satellites	3.0	66.7	66.7	66.7	50.0	50.0	50.0	50.0	50.0
<b>Capex</b>	<b>2.1</b>	<b>47.6</b>	<b>48.6</b>	<b>49.5</b>	<b>37.9</b>	<b>38.6</b>	<b>39.4</b>	<b>40.2</b>	<b>41.0</b>
Additional Depreciation	0.5	11.9	12.1	12.4	9.5	9.7	9.9	10.1	10.3
Asset life for depreciation	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

Source: Company data, APP Securities

Our base case assumes revenue in FY22F of A\$206m; well down (66%) on managements guidance of A\$600m-A\$1,000m.

Given the low operating costs of the business, operating cash flow in FY22F is forecast at A\$166m (A\$0.08 per share) with free cash flow (post replacing 25% of the constellation) forecast at A\$114m (A\$0.05 per share).

For modelling we have assumed revenue grows straight line from US\$20m in FY19F to our "revenue build up" model forecast in FY22F of US\$156m (A\$206m).

Figure 5. Sky and Space Profit and Loss

US\$m	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
<b>Total Sales</b>	<b>2</b>	<b>20</b>	<b>65</b>	<b>111</b>	<b>156</b>	<b>170</b>	<b>185</b>	<b>201</b>	<b>218</b>
Other Operating Expenses	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(5)	(5)
Product & Manufacturing	(3)	(6)	(9)	(9)	(9)	(10)	(10)	(10)	(11)
<b>Total operating expenditure</b>	<b>(6)</b>	<b>(9)</b>	<b>(13)</b>	<b>(13)</b>	<b>(13)</b>	<b>(14)</b>	<b>(14)</b>	<b>(15)</b>	<b>(15)</b>
<b>EBITDA</b>	<b>(4)</b>	<b>11</b>	<b>53</b>	<b>98</b>	<b>143</b>	<b>156</b>	<b>171</b>	<b>186</b>	<b>203</b>
Depreciation	(1)	(12)	(25)	(37)	(46)	(44)	(41)	(39)	(40)
<b>EBIT</b>	<b>(5)</b>	<b>(2)</b>	<b>28</b>	<b>61</b>	<b>97</b>	<b>113</b>	<b>129</b>	<b>147</b>	<b>163</b>
A\$m	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
<b>Total Sales</b>	<b>3</b>	<b>26</b>	<b>86</b>	<b>146</b>	<b>206</b>	<b>224</b>	<b>244</b>	<b>265</b>	<b>287</b>
Total other operating expenditure	(8)	(12)	(16)	(17)	(18)	(18)	(19)	(20)	(20)
<b>EBITDA</b>	<b>(6)</b>	<b>14</b>	<b>70</b>	<b>129</b>	<b>188</b>	<b>206</b>	<b>225</b>	<b>245</b>	<b>267</b>
Depreciation	(1)	(16)	(32)	(49)	(60)	(57)	(54)	(51)	(52)
<b>EBIT</b>	<b>(6)</b>	<b>(2)</b>	<b>37</b>	<b>80</b>	<b>128</b>	<b>148</b>	<b>170</b>	<b>194</b>	<b>214</b>

Source: Company data, APP Securities

## Valuation

### Discounted cash flow valuation

We have used a cost of equity of 16.0% based off an equity beta of 2.00 given business risk and the early stage of the business ramp up, a risk-free rate of 4.0% and a market risk premium of 6.0%. We note that the two closest global listed comparative companies, Globalstar (GSAT) and Iridium Communications (IRDM) have FactSet betas of 2.2 and 1.9 respectively. Clearly “space” is deemed risky.

We have assumed that once the project has ramped up and established low risk counterparties have been signed up as clients the vehicle should be able to hold a meaningful level of debt given its infrastructure like characteristics. We have thus assumed a target debt to enterprise level of 20% in our weighted average cost of capital (WACC) calculation resulting in a WACC of 13.8%.

We have discounted 10 years of free cash flows and applied a nominal terminal growth rate of 3.0% (2.5% inflation and 0.5% real growth). Clearly as the project proceeds and de-risks, our cash flow forecasts will firm up and our discount rate will lower.

Figure 6. Sky and Space Global Discounted Cash Flow Valuation

DCF Operating Cash Flows	FY18F	FY19F	FY20F	FY21F	FY22F	FY23F	FY24F	FY25F	FY26F	FY27F	Terminal
EBITA	(6)	(2)	37	80	128	148	170	194	214	236	
Actual forecast cash tax	0	0	(5)	(14)	(22)	(25)	(29)	(33)	(37)	(40)	
Depreciation	1	16	32	49	60	57	54	51	52	53	
Increase in Working Capital	(0)	0	0	0	0	0	0	0	0	0	
Capital Expenditure	(5)	(65)	(66)	(67)	(52)	(53)	(54)	(55)	(57)	(58)	
Acquisitions/Other/Disposals	0	0	0	0	0	0	0	0	0	0	
Capital Raised	50	0	0	0	0	0	0	0	0	0	
<b>Standard Free Cashflow</b>	<b>39</b>	<b>(51)</b>	<b>(1)</b>	<b>48</b>	<b>114</b>	<b>127</b>	<b>141</b>	<b>157</b>	<b>174</b>	<b>192</b>	<b>1,780</b>
FCF Timing Factor	1	2	3	4	5	6	7	8	9	10	11
Discount Factor	1	1	1	2	2	2	2	3	3	3	4
<b>Discounted FCF</b>	<b>37</b>	<b>(41)</b>	<b>(1)</b>	<b>30</b>	<b>63</b>	<b>62</b>	<b>61</b>	<b>59</b>	<b>57</b>	<b>56</b>	<b>455</b>
<b>Valuation</b>	<b>\$m</b>										
Explicit Cashflows (10 Years)	383										
Terminal Value	455										
<b>Total Firm Value</b>	<b>838</b>										
Plus Cash (Net debt)	46										
Option exercise cash	0										
<b>Total Equity Claims</b>	<b>884</b>										
Diluted Shares	2,078										
<b>Per Share Value</b>	<b>\$0.43</b>										

Source: Company data, APP Securities

We note that if we assume a 5m customer base (less than 1% of the potential addressable market of 750m), based on our 50% discount pricing assumption, the model generates US\$782m (A\$1,029m) of revenue in FY22F, which is in line with the top of SAS’s revenue guidance of A\$1,000m in FY22F.

**This values SAS at A\$2.80.**

Figure 7. Sky and Space Global Sensitivity to Customer Numbers (m) and Pricing Discount

	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
<b>10%</b>	0.37	0.90	1.43	1.97	2.50	3.03	3.57	4.10	4.63	5.17
<b>20%</b>	0.31	0.78	1.26	1.73	2.20	2.68	3.15	3.63	4.10	4.57
<b>30%</b>	0.25	0.66	1.08	1.49	1.91	2.32	2.74	3.15	3.57	3.98
<b>40%</b>	0.19	0.54	0.90	1.26	1.61	1.97	2.32	2.68	3.03	3.39
<b>50%</b>	0.13	<b>0.43</b>	0.72	1.02	1.31	1.61	1.91	2.20	2.50	<b>2.80</b>
<b>60%</b>	0.07	0.31	0.54	0.78	1.02	1.26	1.49	1.73	1.97	2.20
<b>70%</b>	0.01	0.19	0.37	0.54	0.72	0.90	1.08	1.26	1.43	1.61
<b>80%</b>	-0.06	0.07	0.19	0.31	0.43	0.54	0.66	0.78	0.90	1.02
<b>90%</b>	-0.13	-0.06	0.01	0.07	0.13	0.19	0.25	0.31	0.37	0.43

Source: Company data, APP Securities



## Company Overview

Sky and Space Global (SAS) is an Australian listed, United Kingdom (UK) based Nano-satellite communication company with branches in Israel and Poland. The company was founded in 2015 by Israeli satellite and aerospace experts and listed on the ASX in May 2016. It was listed as SSG before Bursledon Energy Limited's (BUR) complete acquisition, to which they changed their operations from development of petroleum and gas in USA to operations of a narrow-band communication network.

SAS aims to provide low cost, Nano-satellite communication coverage on an anywhere to everywhere base with relatively low maintenance costs. Furthermore, SAS develops proprietary network management software systems that enable satellites to autonomously manage deployment, orbital control and M2M communication with little interference from ground stations. This reduces capital expenditure, launch and operating costs SAS and can provide cost effective solutions to the telecommunication and international transport industries.

Sky and Space Global satellites conform to the CubeSat standard and will be built at an estimated cost of around US\$0.5m per unit not including launch costs in the range of US\$0.25m per satellite with a total launched cost of US\$0.7m per nano. The company plans to deploy the next generation of about 200 nano-satellites (8U) in low orbit over the equatorial region to provide narrowband communications that it expects will cost US\$150m to complete in total. The satellites will have a design life of five to seven years. After four years, SAS intends to drop them back to Earth to dispose of them. The company intends to replace 25% of the constellation each year, replacing 50 satellites with new versions.

Currently the Company's "3 diamonds" Nano-satellites (3U) are orbiting space, their dimensions being 10cm x 10cm x 30cm in size, weighing 3.125 kg and have a variety of potential communications applications. SAS has completed operations testing and executed first binding commercial agreements. (see Partners below)

Commercial demonstrations have begun where their significant revenues expected from the constellation. The 3 Diamonds are only technology demonstrators, which, due to the high demand and the 3D capabilities, have become commercial assets. Services have been sold to SatSpace Africa and will earn about A\$3m p.a. and

SAS wants to break into the global telecommunications market given the current substantial demand and expected growth in the next decade. This presents a significant market opportunity for the company, as over 4 billion people in the world lack mobile coverage, especially those in the equatorial regions.

**Figure 8. Sky and Space Global addressable market**



Source: Company data

### Company Strategy

SAS’s initial strategy is to launch its 200 Nano-satellite constellations by 2020 to provide affordable satellite narrowband communication services globally, including: Voice, Instant Messaging, M2M/internet of things (IoT), Data transfer etc., with their current target being the equatorial region which lacks telecommunication coverage.

SAS’s business strategy is to:

- Provide global, low orbit communication infrastructure and services via SAS’s own Nano-satellite constellation;
- Nano-satellite platform is to provide communication infrastructure and services for:
- Premium customers (global corporates, airline/shipping companies);
- Retail customers via deals with Global Telcos, especially attractive in remote or underdeveloped areas;
- Band width satellite communication providers
- Machine-to-machine (M2M) as part of the Internet of things (IoT)
- Real-time tracking for airliners and shipping companies
- Complementary service for cellular networks in Latin Americas, Asian and African regions with poor coverage
- Ad-hoc disaster and crisis areas solutions
- Premium secure services
- Offer store and forward service at affordable rates;
- Plan to take advantage of the increasing demand of bandwidth and the lack of responsiveness to this demand from the industry;

Not only does SAS wants to expand the reach of satellite technology in less developed areas, but also democratise it to become an affordable commercial product globally. Global communication via satellites is expensive, hardly accessible to everyday users, and requires dedicated transceivers.

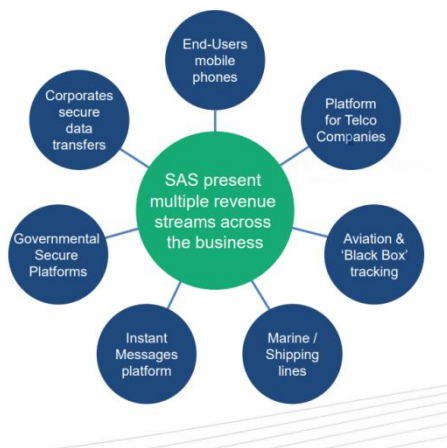
Current service pricing denies access to potential customers globally and SAS plans to take advantage of this by democratising its accessibility by providing affordable rates. There is a multitude of industries which could benefit such as aviation, shipping and remote location enterprises.

The company plans to expand its initial constellation of circa 200 nano-satellites to a global constellation of circa 1000 nano-satellites in the future. This will provide full global coverage in contrast to the proposed equatorial coverage with the initial constellation.

This project is forecasted to take 3-5 years to complete, from its inception in and expanding into the future beyond 2020.

We have not assumed an expansion to global coverage in our modelling.

**Figure 9. Sky and Space Global Revenue Opportunities**



Source: Company data

## Clients and Commercial Partners

The company aims to provide high quality and highly secure communications bandwidth to customers across the globe and is specifically targeting 4 key areas of communications: voice recording, instant messaging, text and data store and forward services.

### GomSpace:

- Gomspace constructed the 3 Diamonds and has been selected to construct the constellation of 200 Pearls
- The constellation contract has successfully past the PDR (Preliminary Design Review) stage
- Sat-Space Africa:
- Agreement for bandwidth provided by “3 Diamonds”;
- Sat-Space Africa is a Pan-African communications company with operations and infrastructure in 27 African countries;
- Sat-Space has secured commercial contracts to sell SAS bandwidth to end users;
- Executed a binding commercial contract.

### BeepTool Communications:

- Agreement for bandwidth provided by “3 Diamonds”;
- BeepTool is a mobile payment, messaging and voice application used across the African continent; that has grown to over 1m subscribers
- We note that in October this year SAS and BeepTool demonstrated the world’s first financial transaction using nanosatellites. The tests used the Company’s “Chatellite” app and BeepTool’s software. Financial transactions were made from one phone to another using SAS’s three Diamonds nano-satellites
- Binding agreement is in final stages

### Globalsat Group:

- Agreement to explore the provision of SAS’s communication services to Globalsat end-users;
- Globalsat provides Mobile Satellite Services, with a strong presence across South and Latin America;
- Parties to provide commercial demonstration of services during H2 2017;

### Virgin Galactic Partnership / Virgin Orbit:

- In October 2016, Sky and Space Global signed an MOU with Virgin Galactic;
- Virgin and SAS are to explore the potential to create a satellite communications network to provide connectivity to its LauncherOne carrier aircraft, Cosmic Girl;
- Presents a substantial commercial opportunity;

### D-Orbit:

- Sky and Space Global (SAS) has signed a binding agreement with Italian space system company, D-Orbit, to provide launch and deployment services for the upcoming roll-out of the SAS nanosatellite constellation
- The partnership will allow SAS to maximize the operational capabilities and potential revenue generation for their upcoming nanosatellite constellation
- The agreement follows the recent announcement of the Pearls, the next generation of SAS nanosatellites, which will be launched into space and were unveiled at the International Astronautical Congress in Adelaide in September.

### Social Finance Systems:

- SFS acquired SocialEco who SAS was previously dealing with.
- In October SAS successfully integrated and tested its Android application called “Chatellite” using the Social Finance Systems Humanity \$1 smartphone. The Chatellite app went operational on this \$1 smartphone and worked seamlessly. The test was successful and messages were sent and received between the Humanity \$1 smartphone and a regular phone using the 3 Diamonds nanosatellites.

### WeFarm:

- In May 2017, SAS signed a Memorandum of Understand (MOU) with WeFarm Ltd, the world's largest knowledge and data network for small-scale farmers.
- The MOU was to explore the integration of the SAS Nano-satellite communication platform into WeFarm's process of on-boarding users, who are small-scale farmers living in remote and isolated locations

**RBC Signals:**

- Sky and Space Global partnered with Seattle-based RBC Signals, a U.S. company that provides a global network of ground stations by using excess capacity from existing facilities. Following the 3 Diamonds launch, SAS used a RBC Signals ground station in Prudhoe Bay, Alaska, for initial communications with the satellites. In May 2017, SAS signed a Memorandum of Understand (MOU) with WeFarm Ltd, the world's largest knowledge and data network for small-scale farmers.

**Check Point Software Technologies:**

- SAS is partnering with Check Point Software Technologies to integrate cybersecurity solutions into the SAS space and ground networks.
- Check Point is one of the largest cyber security vendors globally, protecting customers from cyberattacks by detecting and removing malware and other types of threats.

**SCISYS:**

- SAS has contracted the UK software and services company SCISYS PLC to build the system simulator for the SAS 'Pearls' Constellation of nanosatellites
- The simulator is designed as a high-fidelity, high performance solution which will enable SAS to validate and fine tune operations quickly and effectively, maximising service provision

## Market conditions

Demand for communications services has grown substantially over the past five years in both developed and developing countries. This growth also potentially translates into growth for the satellite communications market in the future as they can compensate for the gaps in the current telecommunications market.

Within developed countries, communication coverage is well established, with household and commercial customers being the biggest beneficiaries of fierce competition within the industry. Lower prices have been the most immediate benefit for customers, and these lower prices have enabled much higher use of telecommunication services, particularly in the mobile segment. This trend may also transliterate to the satellite communications segment; hence SAS has a strong case in providing lower satellite phone rates than what is commercially available today. However lower prices have placed pressure on profit margins and now Telcos are introducing innovative value-added services (such as free music streaming and live sport streaming), further embedding telecommunications into the daily lives of businesses and consumers. Changes in the mobile space over the past five years have exemplified this trend; with mobile phones now providing a range of services. These include voice messaging, email, internet browsing, online banking, GPS mapping and modem services (via tethering). This large service range has allowed a growing number of consumers and small businesses to rely solely on wireless services for all of their communication needs, facilitating a boom in smartphone and tablet use. Due to this strong dependency on wireless connectivity, it opens up an opportunity for the satellites market in the future and for SAS as they can provide connectivity anywhere within range of a satellite.

In developing countries, there is a strong demand for telecommunication coverage given an estimate 4 billion people are without coverage, but implementation is limited. This is largely due to 4 key factors: infrastructure, affordability, skills and awareness, and local adoption. Infrastructure is a main reason simply because a stable, fast connection isn't available most of the time. Approximately 31% of the global population don't have 3G coverage whilst 15% have no electricity, which implies some developed areas just aren't optimised for telecommunications. Affordability is also a main factor preventing many people in developed countries from access to telecommunications. Broadband is only affordable for the entire population in just 29 countries whilst 13% of the world population are living below the poverty line. Skills and awareness is also another barrier as some may not understand how connectivity services work due to their lack of experience. Local Adoption is also a problem as a considerable majority of online content (80%) is only available in 10 languages, which is spoken by less than 50% of the entire global population.

## Regulatory environment

All UK operators of satellites, or other space vehicles, must obtain a licence from the UK Space Agency and take out third party insurance. The Outer Space Act 1986 requires a party carrying out certain space activities to indemnify the Government. Until 2015, indemnity had to be provided on an unlimited liability basis. Section 12 of the Deregulation Act 2015, however, makes provision for the Government to limit a party's liability at €60 million. The Government has also waived Insurance Premium Tax on satellite launches. These changes have been warmly welcomed by the industry, with UK space describing them as having helped "to create a level playing field for UK companies"

However, regulations fail to keep pace with new trends in the sector, especially the growth of small satellites and satellite constellations, and further reform is still necessary. Richard Peckham from Airbus Group described the current regulations as having been "written on the assumption that satellites were big things and you just launched one of them, and that was it. If you are looking to launch hundreds of small satellites [ ... ] you have to have a much more flexible approach". UK requires the operator to have insurance to cover all parts of the mission (pre-launch, launch and in orbit insurance). The current regulations to be particularly prohibitive for small satellites on the grounds that having "full insurance for in-orbit operations [generates] a higher cost for building and launching Nano-satellites registered in the UK". The annual insurance premiums required to cover the €60 million of third-party liability insurance were "many times the cost of building and launching a basic CubeSat or other small spacecraft making it completely uneconomic to license small British spacecraft"

We note that SAS received formal approval from the UK communications regulator, Ofcom, confirming the 'bringing into use' (BIU) classification of its 3 Diamonds nanosatellites. BIU is a critical regulatory classification step that confirms the existence of an actual satellite in space by proving the capability of transmitting or receiving signals from a space station, deployed and maintained at a specific orbit for a continuous period of 90 days. This marks a significant technical milestone for the Company, and is another critical part of the unique intellectual property and value that has been created for all SAS shareholders to date. This process is part of the

Satellite Filing procedures required by the International Telecommunication Union (ITU) and local regulators such as Ofcom, for specific frequency registration. The SAS ITU filings for the frequencies related to the SSG-CSL and SSG-3D satellite systems used for the launch of the 3 Diamonds have been validated by the regulators. This is a major step for SAS as this provides regulatory confirmation of its ability to deliver services using the 3 Diamonds.

### Comparative companies

There are a number of global companies operating in the satellite space. We do not believe any of them are true comparables and SAS will be a key disrupter to the space.

Figure 10. Global Listed Comparative Companies

Ticker	Company	Price (LC)	Market Cap.(A\$m)	FY0		EPS		P/E		EV/EBITDA		Beta
				Sales	EBITDA	FY1	FY2	FY1 (x)	FY2 (x)	FY1	FY2	
CMTL	Comtech Telecommunications Co	21.67	657	550	74	0.4	0.7	53.6	30.0	9.4	8.1	1.7
GILT	Gilat Satellite Networks Ltd.	7.59	547	280	15	-	-	n/m	n/m			0.5
GSAT	Globalstar, Inc.	1.58	2,593	-	(26)	(0.1)	(0.1)	n/m	n/m	98.4	86.5	2.3
IRDM	Iridium Communications Inc.	12.35	1,591	434	229	0.8	0.4	15.0	31.6	9.6	9.0	2.0
ISAT-LON	Inmarsat plc	4.83	3,920	985	546	0.3	0.3	15.0	15.6	6.7	6.4	0.9
KVHI	KVH Industries, Inc.	10.80	248	176	12	(0.5)	(0.2)	n/m	n/m	30.7	15.3	2.2
SDA-ASX	SpeedCast International Ltd	5.18	1,211	-	52	0.2	0.3	22.2	15.5	10.3	8.3	0.5
ORBC	ORBCOMM Inc.	10.76	1,030	-	29	(0.8)	(0.1)	n/m	n/m	20.9	15.3	1.1
VSAT	ViaSat, Inc.	74.24	5,734	-	283	(0.0)	0.5	n/m	136.3	19.0	12.8	1.5
<b>SAS-ASX</b>	<b>Sky and Space Global Ltd.</b>	<b>0.15</b>	<b>246</b>	-	<b>(15)</b>	<b>(0.5)</b>	<b>(0.2)</b>	<b>n/m</b>	<b>n/m</b>	<b>n/m</b>	<b>n/m</b>	
	<b>Average</b>							<b>26.5</b>	<b>45.8</b>	<b>25.6</b>	<b>20.2</b>	<b>1.4</b>
	<b>Median</b>							<b>18.6</b>	<b>30.0</b>	<b>14.6</b>	<b>10.9</b>	<b>1.5</b>

Source: FactSet

## Risk Factors

### Competition

SAS operates in the telecommunications services industry with a focus on the niche satellite communications markets. Currently major players who dominate the satellite communications market globally are Inmarsat, Iridium, Thuraya and Globalstar.

The global narrow band Satellite market is currently worth US\$5.5bn for the use of mobile satellite communications devices (excluding TV). The industry is expected to grow significantly each year as the demand for wireless connectivity increases and shifts away from wired connectivity (submarine cables).

SAS's major competitors have established a strong presence in the satellite global market. They have considerably more technological, financial and marketing resources than SAS. Competition within the satellite market is dominated by pricing, as currently the commercialisation of satellite technology is stagnant due to prices being too expensive for the ordinary consumer. Hence SAS may be able to cater to this demand with the savings derived from the use of its disruptive Nano-technology.

### Economic

SAS has a key geographic focus on Latin American, Asian and African regions with poor coverage as well as disaster and crisis areas. A downturn of economic conditions in these markets could negatively affect SAS's earning ability. SAS believe communication services revenues are less susceptible to economic downturn.

### Loss of key contracts and or obtaining repeat business

SAS business model requires signing partnership/customer agreements with local satellite communication providers. SAS has started at an early stage negotiation with such SatCom providers. However, there are factors beyond SAS control (such as local economy, competitor's activity, sitcom provider considerations etc) that may delay or preclude these agreements.

Besides, SAS would lose key contracts due to increasing competition in this industry and the presence of new entrants. The SAS business model and strategy is based on low pricing for market penetration. Competitors may select to use an aggressive pricing policy to defend their market share, even at the cost of a loss. We note that diversity over geographical regions, sectors and customers provides for a less susceptible business model.

### Technology

**Nanosatellites:** Although SAS develops and provides technical specifications, SAS does not plan (at the moment) to manufacture its own hardware. SAS will outsource Nano-satellites manufacturing, while using mostly customer off the shelf (COTS) hardware to meet many technological needs as part of its business model. As such, SAS will depend on subcontractors meeting the demand and specifications for its Nano-satellites, assuming the risk of a subcontractor not meeting the requirements.

**Software development:** Major effort is dedicated to software management, specifically for satellite communication network management. Software development is always a risk for budget and schedule, both for development itself and also for debugging and proofing of software.

**Ground system procurement and integration:** SAS's nanosatellites will be controlled by a ground control system, which is a strictly COTS product that will require integration and testing. Once SAS procures an appropriate COTS ground control system, it will select a suitable location to place it, this is yet unknown and will be determined prior to the launch. The placement of the ground control system may require approval of the relevant local authorities. We understand that there are so many options for this so the risk is very low

**Communication hardware and link budget:** SAS plans to use COTS communication hardware, with performance meeting operational requirements according to analysis and specifications. Failure of hardware, or even reduced performance of hardware (according to specifications), may lead to degradation in system performance.

### Regulatory environment

The Company will incur ongoing costs and obligations associated with compliance with necessary regulations. Any failure to comply with regulations may result in additional costs for corrective measures, penalties or in restrictions on the Company's proposed business operations. In addition, changes in regulations could require extensive changes to the Company's operations, increased compliance costs or give rise to material liabilities, which could have a material adverse effect on the business, results of operations and financial condition of the Company. The Company's ability to operate in the future will depend in part on whether it is able to effectively commercialise its potential interests in products. This will depend on successful completion of product development activities, obtaining regulatory approval and on there being commercial demand for such products which cannot be guaranteed.

#### **Space weather events**

Extreme space weather events such as solar flares, solar eruptions, gamma ray bursts etc. are a rare possibility. Although SAS hardware will be designed and tested to withstand nominal space environment conditions, SAS satellites (as most satellites currently in use) are not designed to withstand such an extreme event.

#### **Free float and management overhang**

With only 42% free float, liquidity in the stock is tight and the ability to enter and exit the register is a consideration. As noted earlier we expect a capital raising in 2018 to fund the capital cost of the nano-satellite deployment so free float will lift.



## Board and Management

### **Meir Moalem** - CEO and Managing Director

A jet fighter pilot, Lt. Col (Res.) of the IAF, has over 20 years of experience in management, R&D and operation of state-of-the-art projects in Space Systems and Unmanned Aerial Systems, among those acting as a deputy sq. commander and leading the MEIDEX experiment on Space Shuttle Columbia (STS-107) as the project manager for Israel's first astronaut flight, managing Israel's satellite projects (such as Ofeq, Teccar) and more. Meir has a B.Sc. in Physics and Computer Sciences (with honours) and an M.A. from the Diplomacy and National Security executive program (with honours). Currently he is working on his PhD in national security and space programs in Tel Aviv University, Israel. Meir has also received the Israel National Defence award in 2009.

### **Brett Mitchell** - Executive Director- Corporate

Mr Mitchell is a corporate finance executive with over 25 years of experience primarily in the finance, capital markets and resources industries. He has been involved in the founding, financing and management of early stage resources and technology companies and currently holds executive roles on Sky and Space Global Ltd (ASX:SAS) and MGC Pharmaceuticals Ltd (ASX:MXC). Mr Mitchell holds a Bachelor of Economics from the University of Western Australia and is also a member of the Australian Institute of Company Directors (AICD).

### **Peter Wall** - Non-Executive Chairman

Mr Wall is a partner at Steinepreis Paganin, a Perth law firm, which he joined in January 2000. Mr Wall has a wide range of experience in all forms of mergers and acquisitions (including takeovers and schemes of arrangement) and has also advised on numerous successful IPO's and back door listings on the ASX. In addition, Mr Wall specialises in corporate reconstructions and recapitalisations of listed entities, acting as principal or advisor to the transaction. Mr Wall's other core areas of practice include information technology, energy and resources, capital markets, corporate and strategic advice, securities law, commercial law and contract law.

### **Maya Glickman- Pariente** - COO and Non-Executive Director

Highly experienced and regarded as a global industry leader, Maya Glickman-Pariente is Sky and Space Global (UK) Ltd's Chief Operating Officer and will lead the team on satellite mission analysis, mission control software development, and operations management. Maya is MASTER STK certified and was a Senior Satellite Engineer of communications satellite with wide experience in satellite operations. Maya was part of the AMOS-3 development team, LEOP and IOT missions as well as the AMOS-1 end of life mission team. Maya designed and optimized several large-scale constellations for earth observation and communication use, and was involved in the assembly, integration and testing of "Duchifat-1", the first Israeli Nanosatellites. Maya has a B.Sc. in Aerospace Engineering and M.E in System Engineering, both from the Technion University, Aerospace faculty, and is also a graduate of the 2004 ISU summer session program in Adelaide, Australia. Recently, Maya was nominated Associate Chair of the space engineering department in the International Space University summer session program 2016.

### **Yonatan Shrama** - VP Business Development and Non-Executive Director

Yonatan has over 12 years of experience in business development and entrepreneurship in automotive technology systems, medical equipment and high technology security equipment. Yonatan has extensive experience in managing teams and processes. Yonatan is currently the chairman of Enigma, a Cyber company, and VP Bizdev at SPACEIALIST.

### **Meidad Pariente** - CTO

With more than 20 years of satellite and aerospace industry experience, Meidad is a founder of Sky and Space Global and its Chief Technical Officer. Meidad started as AMOS-1 satellite operator, later was the Deputy Mission Manager of AMOS-2, Chief systems engineer of AMOS-3 successfully launched in 2008, and special engineering advisor for AMOS-5, launched in 2011. Meidad was the chief systems engineer and led a team of Israeli engineers and scientists designing the VENUS project, an Israeli-French hyperspectral satellite. Meidad is a leading nanosatellite expert, having led projects in Israel, Europe and the USA. In 2014 Meidad and Maya led the "Duchifat-1" project, the first Israeli nanosatellite which was launched successfully in June 2014 as part of a tertiary project. The Nano-satellite is still fully operational. Meidad holds a B.Sc in Physics from Tel Aviv University and a M.E. in Systems Engineering from the Technion Aerospace faculty.

### **Rachel Kerr** - Company Secretary

Mrs Kerr has 7 years' experience as a Company Secretary on both private and public companies, working on acquisitions, capital raisings, listing of companies on ASX, due diligence reviews and compliance of public companies. Mrs Kerr is also Company Secretary of MGC Pharmaceuticals Ltd.

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Contact with Sky and Space Global has been made during the preparation of this report for assistance with the verification of facts.

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