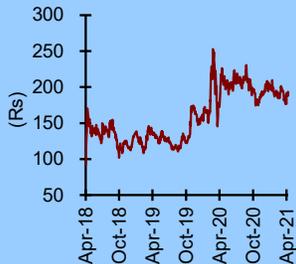


Sector update

Midhani (BUY)



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INDIA Space



LEO launches offer meaningful business opportunity

We hosted Dr Sudheer Kumar, associate director capacity building program office – Indian space research organization (ISRO) for a fireside chat. The idea was to understand ISRO's competitiveness in the following context i) NASA in CY18 highlighted that the average launch cost of US\$18,500/kg between 1979-2000 was cut by a factor of seven with the Falcon 9 heavy launch vehicle of SpaceX ii) troubles of Arianespace - the agency that India has traditionally used for geostationary orbit (GEO) launches, in launching *Ariane-6* iii) increasing launches of One Web (jointly owned by UK government and Bharti Global) in the low earth orbit (LEO) and the possibility of collaboration for ISRO iv) increasing competition in LEO, number of small satellite launch companies are proliferating globally and adding to competitive pressure yielded by SpaceX; can ISRO continue to attract foreign country launches in a meaningful manner?

Mr. Kumar believes there is a huge market for LEO launches in India and ISRO is open to share knowledge/facilities, collaborate with private sector. Mr. Kumar also expects limited competition from foreign players and expect policy support in case of increasing competitive pressures. We maintain BUY on Midhani.

- ▶ **US\$360bn space economy, Indian share is 3%.** Global space economy is US\$360bn of which 2% is launch vehicles, 5% is satellites, 45% is space applications, and 45% is ground support system. Indian share in the space economy is 3%. Future opportunity for the private sector lies in the application domain. It became clear from the conversation that increasing Indian share can be accelerated by private sector participation, specially in launch vehicles and satellites as ISRO wants to focus incrementally on research and development. The economics of private sector participation in launch vehicles was not clear though.
- ▶ **Arianespace lost out as the world's leading commercial launch provider to SpaceX's lower priced launches in CY17** (Source: report from *Cour des Comptes*, French administrative court of Audit). SpaceX in CY20 also fared better than Arianespace in terms of value of contracts won for future launches. Demand of communication satellites launches to GEO space is also shifting. Fewer broadcast satellites are being launched. Focus is shifting to smaller satellites which costs far less to launch. Arianespace has tried its ride sharing launch with a Vega rocket in September, '20, but the costs are still higher than SpaceX which can offer customers frequent low priced space on rockets already been deployed for Musk's mega-constellation *Starlink*.
- ▶ **Takeaway from the call on GEO launches and the possible opportunity.** Fast track development of fully assembled semi cryogenic engine for GSLV launch vehicle for 6000 te payload is ongoing and scheduled for completion in FY22. This has positive business implication for Indian private sector players. Yet three things were highlighted i) scope of demand has shifted to LEO launches ii) slots for GEO launches is hard to receive given the problem of debris and iii) perhaps a bit more funding support is required for Indian private sector before economics take hold in GSLV/PSLV launch vehicles. The discussion highlighted that the prospects in LEO launches were more, inline with our understanding.

- ▶ **Significant traction expected in LEO launches. Over the next decade, Euroconsult expects ~10,100 small satellites to be launched into LEO, more than 5x of the past decade.** ISRO's workhorse in the form of PSLV launch vehicle allows ISRO to be extremely cost competitive. While there is a perceptible risk of i) increasing competition from all around in terms of proliferating small satellite launch companies i.e supply exceeding demand and ii) reducing launch costs due to advent of SpaceX, Mr. Kumar believes domestic launch market is significantly large and should be targeted by private sector players. Mr. Kumar also expects policy support in case there is a competitive threat from foreign new entrants. It was however not clear, whether the intensity of attracting foreign launches can be maintained.
- ▶ **Oneweb and the possible opportunity due to involvement of Bharti Global.** Along with UK government, Bharti Global has taken an equity stake while rescuing OneWeb from bankruptcy (CY20). Oneweb incidentally is Arianespace's biggest customer, with a contract worth more than US\$1bn to put 650 of its first generation satellites into orbit by CY23 end. Oneweb's effort to provide high speed internet through broadband has ~ 146 satellites in orbit by Mar, '21. ISRO suggested that discussions are on for collaboration with Oneweb for their LEO launches.

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