

SpaceX

SpaceX has gained worldwide attention for its historic milestones, driven by the desire to revolutionise space technology and to attain its ultimate goal of enabling people to live on other planets

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Ganesh Nayak
SpaceX

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Transaction Details

Offering Amount

US\$100m

Price

US\$185 – 190 / share

Valuation

c.US\$30bn

Deal Type

Equity

- **Opportunity:** a primary investment round of US\$1bn directly into SpaceX
- **Expected Returns:** 2 – 4x return, 7 year investment horizon (exit through share transfer or IPO)
- **Terms⁽¹⁾:** 2% one-time management fee, 20% carry
- **Investment thesis:**
 - **Competitive advantage** – SpaceX recovers and reuses rocket technology that allows launching of satellites into orbit at one-fifth the cost of private competitors⁽²⁾
 - **Market leader** – developed Falcon Heavy, the most powerful operational rocket in the world, which can lift 2x the payload compared to its next closest operational vehicle at a third of the cost
 - **Proven capabilities** – garnered >US\$12bn of contracts to date and is expected to capture a larger market share of the launch services market in the future

Business Overview

- SpaceX is a private aerospace manufacturer and space transportation services company based in California, USA
- Founded by Elon Musk in 2002, SpaceX operates through its 2 business units: (1) **Launch Services**, and (2) **Satellite-Internet Programme**, and designs, manufactures, and launches reusable rockets, with plans to establish a global satellite internet service
 - Current rocket applications include space station resupply missions, commercial satellite launch missions and US government national security missions
- **Launch Services**
 - Builds and launches reusable rockets for both commercial and government projects, disrupting the space transportation industry by providing low cost launch services
 - Successfully completed 67 launches utilising merely 4 kinds of rockets and space crafts, making them a market leader and disruptor in a traditional industry where rockets are built for single usage
 - Secured >100 missions to date, which represent >US\$12bn of contracts; expected to capture >50% of the global commercial launch market in the next few years
- **Satellite-Internet Programme**
 - Announced plans to launch low Earth orbit ("LEO") satellite constellation to provide gigabit internet globally, which is projected to commercialise in 2020
 - The project's viability depends on reusable rockets and technical work to enable LEO constellation to deliver broadband internet without latency issues
 - Taking a vertically integrated approach to solve the problem and deliver a competitive service, SpaceX recently established a satellite manufacturing operation to create a defensible business based on low launch costs

Sources: Company Data, Factiva

⁽¹⁾ Applies only to investment size of >US\$250k; additional administrative fees may be involved for investment size of <US\$250k

⁽²⁾ ArianeGroup, Blue Origin, Orbital ATK, United Launch Alliance (JV between Lockheed Martin and The Boeing Company), etc.

⁽³⁾ As of 6 Sept 2018

Valuation History / Liquidity / Exit

Period	Share Price	Valuation	Growth
4Q 2012	US\$14.00	US\$2.0bn	-
1Q 2013	US\$33.00	US\$4.6bn	+136%
1Q 2014	US\$43.00	US\$6.0bn	+30%
1Q 2015	US\$77.00	US\$12.0bn	+79%
1Q 2016	US\$96.42	US\$15.0bn	+25%
1Q 2017	US\$105.00	US\$16.2bn	+9%
3Q 2017	US\$135.00	US\$21.5bn	+29%
2Q 2018	US\$169.00	US\$27.5bn	+25%

Initial Public Offering ("IPO")

- IPO for the launch services business will happen once SpaceX can launch rockets every other week without major issues
- Possibility that the satellite internet business will list separately
- Targeted liquidity event in 2022

Satellite-Internet Programme

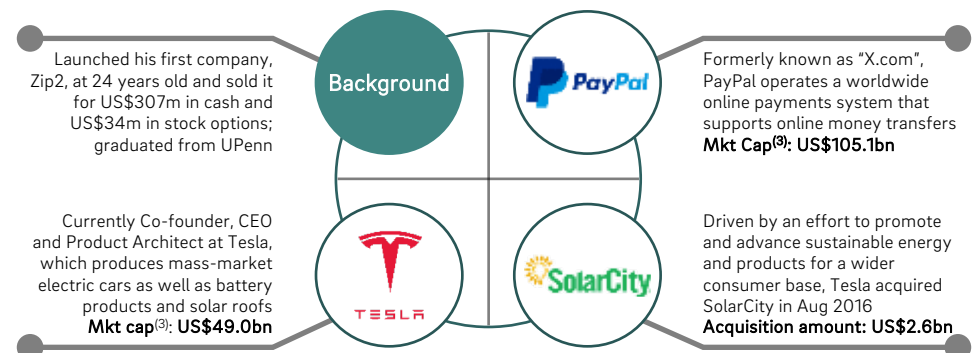
- SpaceX believes this business represents a potential to create a new telecom company of the size of Comcast / Time Warner; management expects c.US\$25bn in revenues by 2025

Share Transfer

- SpaceX organises a tender, setting its new valuation every 6 months
- Allows existing shareholders to sell via tender

Founder Background

SpaceX is founded by the visionary Elon Musk who is a proven entrepreneur, evident in his founding and successful exits of PayPal, Tesla and SolarCity. SpaceX is currently valued at >US\$150bn.



SpaceX (cont'd)

The world's fastest growing providers of launch services is working on next generation, fully reusable launch vehicles that will be the most powerful ever built, capable of carrying humans to Mars and other destinations

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Launch Services

- Primary applications of rocket / spacecraft launch services include space station resupply missions, commercial satellite launch missions and US government national security missions
- Since 2002, SpaceX has built a series of rocket and spaceship systems from scratch, with the core driving principle being to reduce costs substantially by making various parts of the system reusable
- SpaceX is the market leader in launch services, with an estimated 29 launches by end-2018 which is >1.5x compared to its closest competing rocket (Soyuz-2)
- Continues to gain market share of awarded launch contracts due to its distinct advantage of reusability
- Projected to take attain revenues of US\$4.6bn by 2022; >80% market share on commercial and military segments by 2025, which indicate a c.US\$25bn upside on the launch services business in the long run

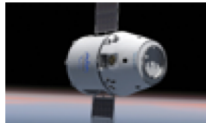
Falcon I (Rocket)
Currently retired



Falcon 9 (Rocket)



Dragon (Spacecraft)



Falcon Heavy (Rocket)



Key Customers

Since the first mission in 2006, SpaceX has made 67 successful launches in notable missions for prominent companies across the globe, with another 35 launches in the pipeline

Satellite telecommunications



Others



Satellite-Internet Programme

Satellite Internet

- Revolutionary idea to put satellites into a much lower orbit than usual, so as to cut the latency of broadband services; target 684 – 823 miles in the air, compared to >22,000 miles for others
- Advantage of satellite-based broadband is that it can cover entire regions without the need to build expensive land-based internet infrastructure – allowing for better targeting of rural areas

Satellite manufacturing

- Target to develop satellites like consumer electronics products – taking c.3 years to complete⁽¹⁾
- Shorter lifecycle increases innovation speed and enables defensibility based on low launch costs
- SpaceX's competitive advantage is its reusable rocket technology that allows launching of satellites into orbit at one-fifth the cost of private competitors

Current progress

- Launched the first two test satellites in Feb 2018 and attained official license by the Federal Communications Commission ("FCC") in Mar 2018 to operate broadband internet satellites
- Some problems to resolve are cost issues with regards to customer-premise equipment ("CPE"), which is ultimately needed to make distribution and execution viable

Upside potential

- Management projects >US\$10bn in revenues from the satellite internet business by 2022 and c.US\$25bn by 2025, creating an entity valued between US\$75m – 100m in the next 10 years
- SpaceX believes the satellite internet business represents a potential to create a new telecom company the size of Comcast / Time Warner

Recent News

- Oct 2018** • Successfully launched the SAOCOM 1A satellite from Space Launch Complex 4E ("SLC-4E") at Vandenberg Air Force Base
- Sep 2018** • Falcon 9 successfully lifted off from Space Launch Complex 40 ("SLC-40") at Cape Canaveral Air Force Station carrying the Telstar 18 VANTAGE satellite to a Geostationary Transfer Orbit
• Announce that Yusaku Maezawa – fashion innovator and globally recognised art curator – will be the company's first private passenger flight around the Moon for 2023
- Aug 2018** • Announced the names of the first four astronauts to board Crew Dragon, which will return human spaceflight capability to the US since the Space Shuttle Program was retired in 2011
• Falcon 9 successfully lifted off from Space Launch Complex 40 ("SLC-40") at Cape Canaveral Air Force Station carrying the Merah Putih mission for PT Telkom Indonesia
- Jul 2018** • Successfully launched ten Iridium NEXT satellites – the seventh set of satellites in a series of 75 that SpaceX will launch for Iridium's next generation global satellite constellation, Iridium® NEXT
- Jun 2018** • Falcon 9 successfully lifted for launch of its fifteenth Commercial Resupply Services mission ("CRS-15"); Dragon will return to Earth with >4,000 pounds of cargo after 1 month at the ISS
- Mar 2018** • Received official permission from the US Government to launch a fleet of satellites designed to beam high-speed Internet signals down to Earth
- Feb 2018** • First flight of Falcon Heavy, the world's most powerful operational rocket by a factor of two, capable of carrying large payloads to orbit and supporting missions as far as the Moon / Mars
- Jun 2017** • Successfully achieved the first re-flight of a commercial spacecraft, Dragon; a historic milestone on the road to full and rapid rocket reusability
- Mar 2017** • First ever re-flight of an orbital class rocket, Falcon 9, which returned to Earth for the second time following delivery of the payload

SpaceX (cont'd)

The only private company capable of launching reusable rockets; made history again in 2018 when it successfully launched Falcon Heavy, the world's most powerful operational rocket by a factor of two

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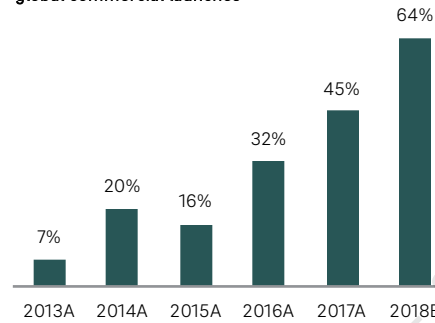
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Market Analysis

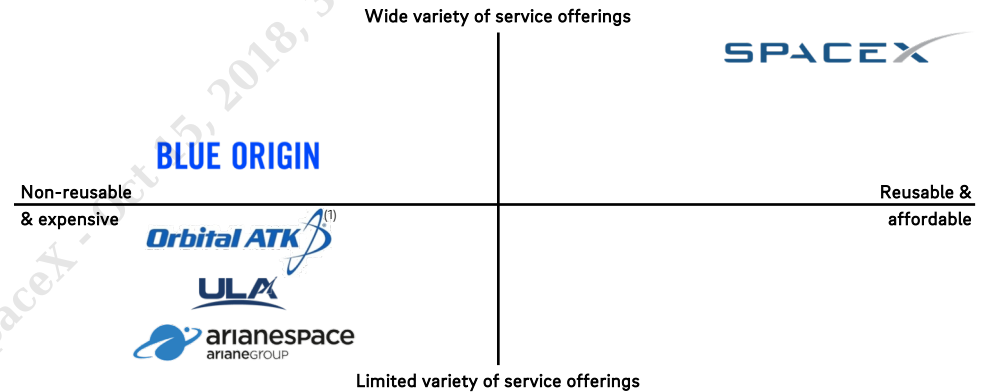
Global launch services market

- Space launch activity worldwide is carried out by the civil, military and commercial sectors, with 2017 recording a total of 33 commercial launches
- SpaceX is gaining its market share as more commercial contracts are awarded to them, and is forecasted to capture >60% of the market by end-2018
- In total, commercial launches generated revenues of >US\$3bn, displaying a healthy increase from c.US\$2.5bn in 2016
- Most active regions in the commercial space are US, Europe and China
- For government contracts, SpaceX remains a top competitor alongside United Launch Alliance ("ULA")
- In Mar 2018, the US Air Force awarded SpaceX a US\$291m contract to launch a military satellite aboard Falcon 9, and said that the lower price was a major factor in beating out ULA for the contract

SpaceX's market share by awarded global commercial launches



Competitive Analysis

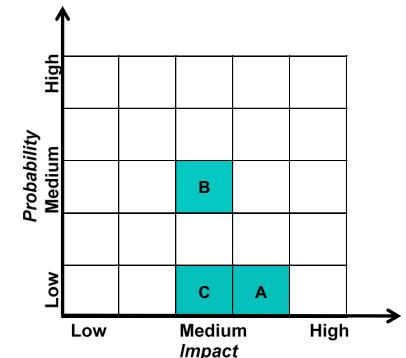


Conclusion

- SpaceX is founded by the visionary Elon Musk who is a proven entrepreneur; evident in his establishment of Tesla and successful exits of PayPal and SolarCity, which has made tremendous impact on various industries
- Exhibits an impressive competitive advantage over industry peers with its proprietary technology that enables reusability of rockets – enabling them to benefit from an unrivalled cost advantage
- Caters to a wide variety of launch services, including cargo, crew transport and satellite launches, on top of being on course to providing broadband internet connectivity through satellite internet services

Risks

- A series of unsuccessful launches, relaunches and / or crashed rockets may jeopardise SpaceX's future commercial viability; subsequently rendering it unable to secure future contracts
- Inability to execute a successful Satellite-Internet Programme may depress SpaceX's advantage as a diversified player in the market; thereby affecting their plans to diversify their revenues
- Complications in the development of future rockets may result in delays to SpaceX's growth strategies, thereby distorting financial projections, margins and valuation



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