



Virgin Galactic Research (11/15/19)

Description: Virgin Galactic Holdings, Inc., is an aerospace company that develops human spaceflight for private individuals and researchers. The company is based in Las Cruces, New Mexico.

Ticker: SPCE

Price: \$9.68

Market Cap: \$1.9B

Performance: -5.0% from IPO on October 28th

Dividend Yield: N/A

Analysis

Virgin Galactic is not your ordinary company by any means and is the first stock ever to give someone's portfolio direct exposure to space travel. Before hitting the public markets, the company merged with Social Capital Hedosophia who took a 49% stake in Virgin Galactic.

The company already traded under the ticker IPOA but after the merger was completed the newly formed company now trades under the ticker SPCE on the NYSE. As a result of the merger, Virgin Galactic has received over \$450M of primary proceeds and pre-transaction owners of VGH, LLC retain over 58% ownership of VG following the business combination.

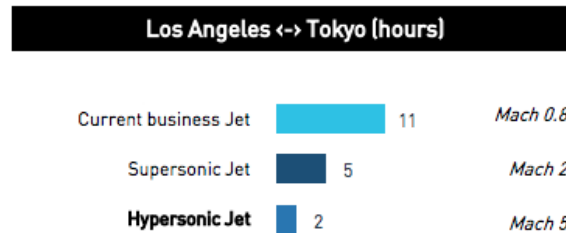
To begin, the company has a lot of things going on and investors in the name are mostly in it for what the future could potentially have in store 5-10 years out. In a nutshell, there are two major areas SPCE is trying to capitalize on:

1. Space Travel
2. Hypersonic Travel from country to country


Near-term, it is the space travel trips that are going to be driving revenues for the company but CUBE is actually more excited about the hypersonic travel as that caters to a much larger market and would generally be viewed as something less risky in the public's eye.

The issue with hypersonic travel from country to country is that the technology still isn't ready and is something SPCE hopes can be available in the next 5-10 years.

Looking at the image below, we can see that flight from LA to Tokyo would only take 2 hours if provided by SPCE vs. the normal 11 hours that we experience on commercial jets today and the 5 hours experienced on supersonic jets. This is a \$300B addressable market that SPCE can tap into and is ultimately what we believe can actually be one of the more lucrative markets for them.



Looking at the next few years, it's all about space travel for SPCE. The company has already received customer reservations as from more than 600 people in 60 countries, representing approximately \$80M in total collected deposits and over \$120M of potential revenue. The company has also received 3,557 expressions of interest in flight reservations as of September 30, 2019 but CUBE isn't applying too much weight to that figure.

	Years in Business	Customer Experience	Flight Experience	Takeoff / Landing	Flight Crew	Operational Milestones		
						FAA License?	Flight Test?	Flown Passenger?
	15 years	Driven by Virgin DNA 3-day pre-flight training End-to-end, including pre- and post-flight	Up to 90-minute journey 3-4 minutes floating in space	Horizontal takeoff Runway landing	2 pilots	✓	✓	✓
BLUE ORIGIN	19 years	1-day "essentials" training	11-minute journey Comparable free-floating in space	Vertical launch Parachute capsule landing	No pilot	✓	✓	-

The company believes there are about 2M people that can afford their \$250,000 flight to space as that is the amount of ultra-high net worth individuals there are in the world with a net worth of at least \$10M. As the company is able to scale the business and bring down costs to lower the price, they believe they will be able to tap into a much broader market.

Let's now dive into the financials from the company's most recent quarter just posted on November 12th.

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	(In thousands)			
	2019	2018	2019	2018
Revenue.....	\$ 832	\$ 386	\$ 3,252	\$ 1,562
Cost of revenue.....	406	68	1,690	387
	426	318	1,562	1,175
Selling, general, and administrative expenses.....	17,814	13,636	44,719	37,389
Research and development expenses.....	34,528	26,456	96,119	84,971
Operating loss.....	(51,916)	(39,774)	(139,276)	(121,185)
Interest income.....	387	164	1,137	344
Interest expense.....	-	2	2	8
Other income.....	91	463	128	28,542
Loss before income taxes.....	(51,438)	(39,149)	(138,013)	(92,307)
Income tax expense.....	37	35	123	115
Net loss.....	(51,475)	(39,184)	(138,136)	(92,422)
Other comprehensive income (loss):				
Foreign currency translation adjustment.....	(58)	5	(79)	(17)
Total comprehensive loss.....	<u>\$(51,533)</u>	<u>\$(39,179)</u>	<u>\$(138,215)</u>	<u>\$(92,439)</u>

- SPCE reported revenue of \$832,000 which was up from \$386K in the same period last year. Revenue YTD stands at \$3.3M which has been generated by transporting scientific payloads and providing engineering services.
- Net losses came in at \$51.5M and \$138.1M for the three and nine months ended September 30, 2019, respectively.
- Net cash used in operating activities for the nine months ended September 30, 2019 was \$128.3M

In the image below on the balance sheet, we saw cash at the end of Q3 stood at \$48.8M but it must be noted that this does not include the proceeds from the merger. Including proceeds from the merger, the number is really closer to around \$500M before accounting for the cash burn in Q4. CUBE expects cash at the end of Q4 to be around \$440-450M as the company is currently burning around \$16M per month. CUBE anticipates this number to rise as the company pushes to meet their forecasts and build their spacecrafts.



Something else worth noting is that the company does not have any debt, so at this moment in time bankruptcy is not a concern. The current cash on hand should be enough for SPCE to last through 2021 before they either issue more shares, raise debt, or hit profitability. In addition, Social Capital is founded by Chamath Palihapitiya so tapping into more cash should not be an issue. In addition, Palihapitiya also invested \$100M of his personal money and he will serve as the chairman of the company so there is a lot on the line here to ensure SPCE keeps the doors open.

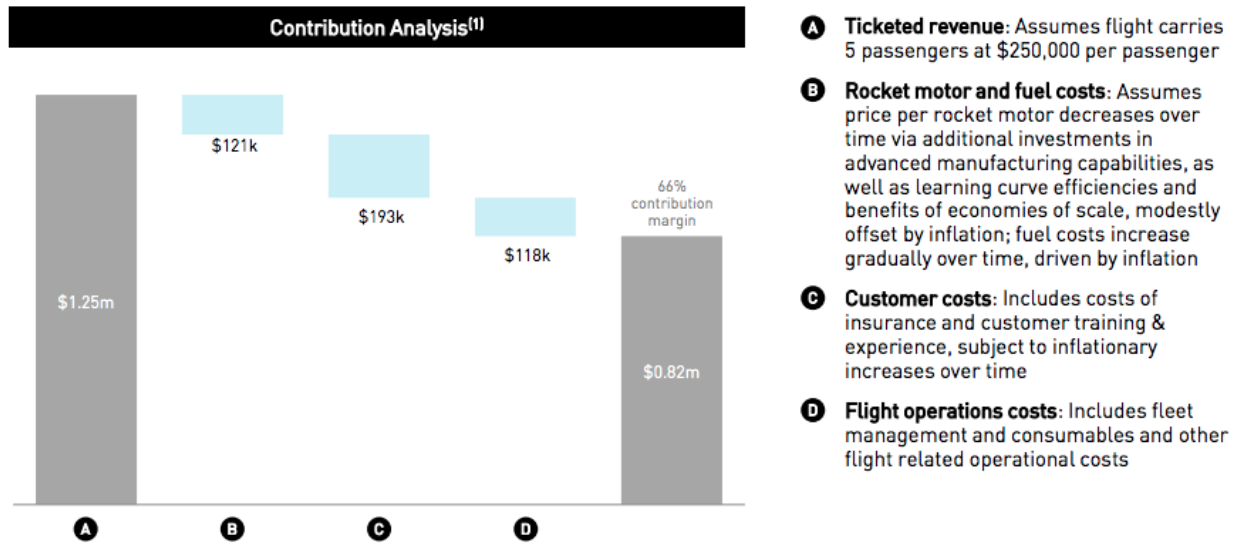
CONDENSED BALANCE SHEETS

	September 30, 2019 (Unaudited)	December 31, 2018
ASSETS		
Current Assets		
Cash	\$ 48,489	\$ 462,162
Prepaid expenses	74,258	45,339
Total Current Assets	122,747	507,501
Marketable securities held in Trust Account	677,167,505	704,250,272
Total Assets	\$ 677,290,252	\$ 704,757,773
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current Liabilities		
Accounts payable and accrued expenses	\$ 5,479,951	\$ 200,529
Advances from related party	1,725,813	381,675
Total Current Liabilities	7,205,764	582,204
Deferred underwriting fees	24,150,000	24,150,000
Total Liabilities	31,355,764	24,732,204
Commitments		
Class A ordinary shares subject to possible redemption, 61,738,641 and 66,136,664 shares at redemption value at September 30, 2019 and December 31, 2018, respectively	640,934,487	675,025,568
Shareholders' Equity		
Preferred shares, \$0.0001 par value; 5,000,000 authorized; none issued and outstanding	—	—
Class A ordinary shares, \$0.0001 par value; 500,000,000 shares authorized; 3,490,181 and 2,863,336 shares issued and outstanding (excluding 61,738,641 and 66,136,664 shares subject to possible redemption) at September 30, 2019 and December 31, 2018, respectively	349	286
Class B ordinary shares, \$0.0001 par value; 50,000,000 shares authorized; 17,250,000 shares issued and outstanding	1,725	1,725
Retained earnings	4,997,927	4,997,990
Total Shareholders' Equity	5,000,001	5,000,001
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	\$ 677,290,252	\$ 704,757,773

Seeing Social Capital support SPCE and the founder of the VC himself put \$100M into it is very encouraging. One of the things that is a bit concerning, though, and that CUBE is quite frankly bummed about is that Richard Branson is now simply a large shareholder and does not hold a seat on the board, executive team, or audit committee.

Forecasts from Virgin Galactic

First and foremost, as we mentioned the current price to fly per passenger is \$250,000. SPCE believes they can achieve 66% margins per flight as they anticipate \$1.25M in revenue for the 6 passengers they can carry and will inherit \$121K in rocket and motor fuel costs, \$193K in customer costs like training and insurance, and \$118K in flight operating costs. All in all, the company expects to net about \$820K per flight.

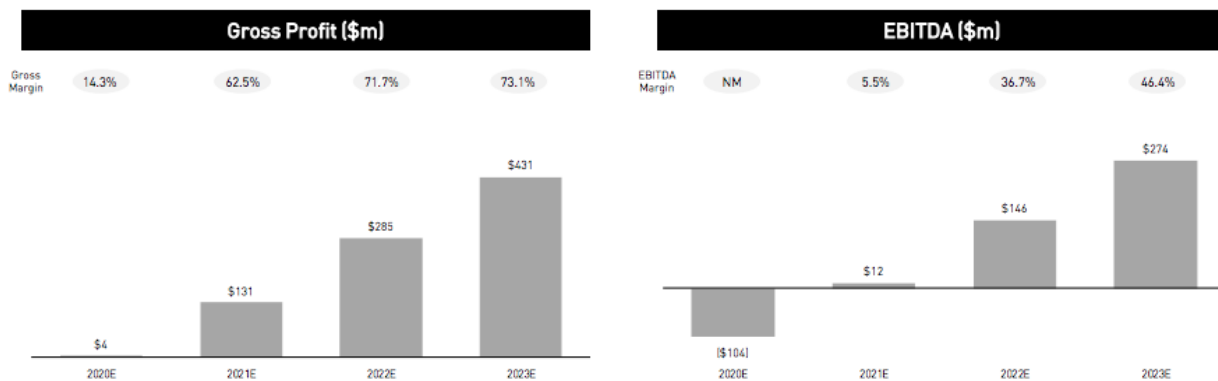


These margins seem extremely attractive but that is only one area investors are focusing on. How quickly can SPCE scale their operations?



As we see in the charts above, SPCE only expects to have 2 spaceships ready next year followed by an additional one every year thereafter until 2023. The company also only plans on doing 16 flights next year and then ramping up their output nearly 7x to 115 flights in 2021 – when the company believes they’ll hit profitability with \$210M in revenue on a combined 646 passengers.

SPCE expects gross profit to be flat in 2020 with earnings before interest, taxes, depreciation, and amortization to come in at -\$104M. The company then expects to be EBITDA positive in 2021 by a modest \$12M on \$131M gross profit.



So where does this leave SPCE as an investment? At a \$1.9B valuation and \$500M in cash, this places SPCE at a \$1.5B enterprise value implying the company trades at 3.8x 2022 revenue and 2.5x 2023 revenue. As we walk down the income statement, this also assumes SPCE trades at 10.3x 2022 EBITDA and 5.5x 2023 EBITDA. Based on the growth rates, this actually assumes that SPCE is trading at a very attractive valuation.

The question is whether or not SPCE is actually going to meet these targets and that is where CUBE would rather like to remain patient and see how SPCE makes progress because off the bat these projections look very optimistic.

This is not beat up on Richard Branson or the team, but here are a list on forecasts made over the last couple of decades by Virgin Galactic:

1999

“Virgin employees have been researching the feasibility of offering space flights for about \$100,000 each, as soon as 2009, [Virgin Atlantic spokesman, Paul] Moore said. He added that market research suggests that as many as 200,000 people — wealthy baby boomers

who saw Neil Armstrong walk on the moon 30 years ago — would be willing to pay tens of thousands of dollars to experience space travel.” [May 19, 1999 Bloomberg News]

“Richard Branson, ruler of the Virgin empire, is planning a hotel in space and has registered a company, Virgin Galactic Airways, to fly guests into orbit. ‘We’re looking at various things that could enable people to go to space for a reasonable price,’ he told Interneters last week in an online chat. ‘I hope in **five years** a reusable rocket will have been developed which can take up to 10 people at a time to stay at the Virgin Hotel for two weeks.’” [May 24, 1999 Cedar Rapids Gazette]

2004

“Airline mogul and adventurer Richard Branson announced plans Monday to boldly go where no private transport company has gone before — into space. Branson’s Virgin Group said, it would offer commercial space flights by 2007, with Branson himself joining the inaugural journey.” [September 28, 2004 Associated Press]

“Thrill seekers are plunking down six figures to ride rockets that haven’t even been built yet, and a new airline called Virgin Galactic promises to be up and soaring in the next three years.” [October 7, 2004 Associated Press]

2005

“Virgin Galactic officials said 100 people already have paid \$200,000 apiece to fly into space. They include actress Victoria Principal, who told the news conference she looked forward to being on the first civilian flight of Virgin Galactic, perhaps as soon as 2008.” [December 15, 2005 Associated Press]

“Virgin Galactic plans to operate its initial flights from the Mojave base ahead of the projected opening of the New Mexico spaceport in late 2009 or early 2010.” [December 14, 2005 Associated Press]

2006

“Virgin Galactic, already has 100 people who have paid \$200,000 apiece for flights, which the company has said it hopes to begin in 2008.” [February 21, 2006 Associated Press]

2007

“Branson and some family members will make the first passenger flight, in mid-2009. Regular flights will follow. The plan is to fly once a week for the first year, then twice a week, and eventually twice a day. Over time, Wincer said, Virgin Galactic hopes to drop its ticket price to \$50,000.” [February 14, 2007 Doylestown Intelligencer]

“Stephen Attenborough, Virgin Galactic’s astronaut liaison, reassured the founders in an e-mail that the accident’s impact on the first commercial spaceflights — expected in late 2009 or 2010 — will be ‘minimal’ and that it was ‘business as usual.’” [August 27, 2007 Associated Press]

2009

“Gov. Bill Richardson and others are preparing to break ground Friday on construction of a terminal and hangar facility at the world’s first commercial spaceport built with the idea of launching private citizens into space for profit. Some 250 people are lining up to pay \$200,000 each to take the trip as early as next year.” [June 17, 2009 Associated Press]

“Branson hopes to begin passenger flights out of New Mexico sometime in 2011 after a series of rigorous safety tests.” [December 8, 2009 Associated Press]

2010

“If the plans of people like Sir Richard Branson of Virgin Galactic are accurate, in the next three to five years there will be very frequent space tourism launches,’ said Scott Hubbard, a professor of astronautics and aeronautics at Stanford University.” [August 22, 2010 Associated Press]

“Tickets to ride aboard SpaceShipTwo cost \$200,000. Some 370 customers have plunked down deposits totaling \$50 million, according to Virgin Galactic.” [October 11, 2010 Associated Press]

2011

“Virgin Galactic, one of billionaire Richard Branson’s many companies, has already booked more than 300 suborbital flights. The company hopes to complete its test phase and begin launching flights next year. Its plan for suborbital flights means its ships would go up into space, without completing an orbit of the Earth.” [June 3, 2011 Brandon Sun]

“Governments are not going to be running the future of space travel,’ Branson told an audience at Microsoft’s Worldwide Partner Conference on Wednesday. ‘Private enterprise is.’ He’s right. Branson’s Virgin Galactic plans to begin regular launches into low earth orbit next year. Other companies are looking even beyond the moon.” [July 15, 2011 Doylestown Intelligencer]

“We’re very, very close now - with the spaceport finished, with the mother ship finished, with the spaceship finished, with the final tests going on - to starting commercial spaceship travel,’ the Virgin boss [Richard Branson] said. Although billed as the official opening, final

tests will not be complete until the end of 2012 with flights starting soon after.” [October 18, 2011 Telegraph]

2013

“Virgin chief Richard Branson has put a time frame on his plan to launch tourists into space, claiming he and his family will blaze a trail for hundreds of fare-paying passengers by blasting off in December 2013.” [June 12, 2013 CNN]

“According to Virgin Galactic founder, Richard Branson, the firm is putting the final touches on cabin interiors, flight suits, and training programs, among other key details, and they are on track to begin commercial service out of Spaceport America in 2014. To recapitulate: Tourists will be regularly traveling to space next year.” [September 8, 2013 Singularity Hub]

2014

“A report claims defects found in the wings of Sir Richard Branson’s Virgin Galactic spacecraft will delay the commercial space flight operation until at least 2015 - but reveals that even when the flights do take off, passengers may technically not be taken into outer space anyway.” [May 12, 2014 International Business Times]

2017

Branson has been more circumspect in his schedule projections since an October 2014 fatal accident during a test flight of Virgin's first vehicle. But in an interview with The Telegraph earlier this month, the billionaire entrepreneur said he'd be "very disappointed" if the program isn't well underway by the end of next year.

Virgin Galactic is one of three companies in the Virgin Group's spaceflight division, known as Galactic Ventures. On Wednesday (April 26), Galactic Ventures chief executive George Whitesides, a soft-spoken, former NASA staff chief, said Branson's expectations for commercial flights in 2018 are realistic.

"We're well into test flight now," Whitesides told the Senate Committee on Commerce, Science and Transportation. The Virgin CEO addressed the committee along with other industry leaders during a hearing on reducing regulation barriers in the space industry.

Conclusion

Now could this finally be the time Branson and Virgin Galactic live up to their word? While things look much more sound now, we are still going to wait and see.



Another alarming line item is that in 2021, SPCE expects to send over 600 people to space but only anticipates customer costs of \$24M – this includes insurance and training. While I don't know the insurance policies behind such things, I do find this number to be quite low. Back in 2014 when their spacecraft crashed in California's Mojave Desert during a test flight, killing one pilot and injuring the other, SPCE was insured for losses of around \$40-50M. With new technologies, over 600 ultra-high net worth individuals going up to space, and equipment totaling several hundred million dollars, the \$24M in direct insurance and training costs, or \$35K a person, still seems fairly low to me.

Overall, the company looks to have a promising future and if they do, in fact, pull off these numbers it will make for a remarkable investment. CUBE, being risk averse, needs to see a little more proof of concept as management has a solid track record of being overly optimistic about their ability to meet certain timelines dating back to 1999. Given how new this technology is and the risks it incurs from both a financial standpoint and literal life and death standpoint, I see a lot of execution risks, legal risks, financial risks, etc. As much as I want to buy into the cheap valuation on a 2022/2023 timeline, there are still so many things that can change the course of that forecast. One crash, one poor landing, or even one emergency safety landing after launch and you could see a huge fall off in reservations and interested participants.

Similar to Tesla, we are rooting for Sir Richard Branson and the entire team but this will be one CUBE keeps on the sidelines until the future looks a bit more clear.