TESLA AT A TRILLION: TIME FOR A REVALUATION!

A COVID Winner?

Tesla again?

- I have been writing about and valuing Tesla for most of its lifetime in public markets, and while it remains a company that draws strong reactions, it is one that I truly enjoy valuing.
- It has been a while since my last valuation of the company, which occurred in January 2020, and given how much the landscape has changed, partly as a result of the company's own actions and results partly because of how COVID has upended the automobile business to Tesla's benefit, it is time to revisit the company and reassess its value, especially as the company’s market capitalization crosses a trillion dollars.

The Back Story

- I first valued Tesla in 2013, as a "luxury automobile company" and that I have valued almost every year since.
- I have valued the company almost every year since, and between 2014 and 2018, each of those valuations came to almost the same conclusions.
  - With each valuation, my story for the company expanded and my valuations increased, in small or large amounts.
  - The market price for the company jumped even more, leading me to conclude in each of these valuations that it was not a company that I would invest in.

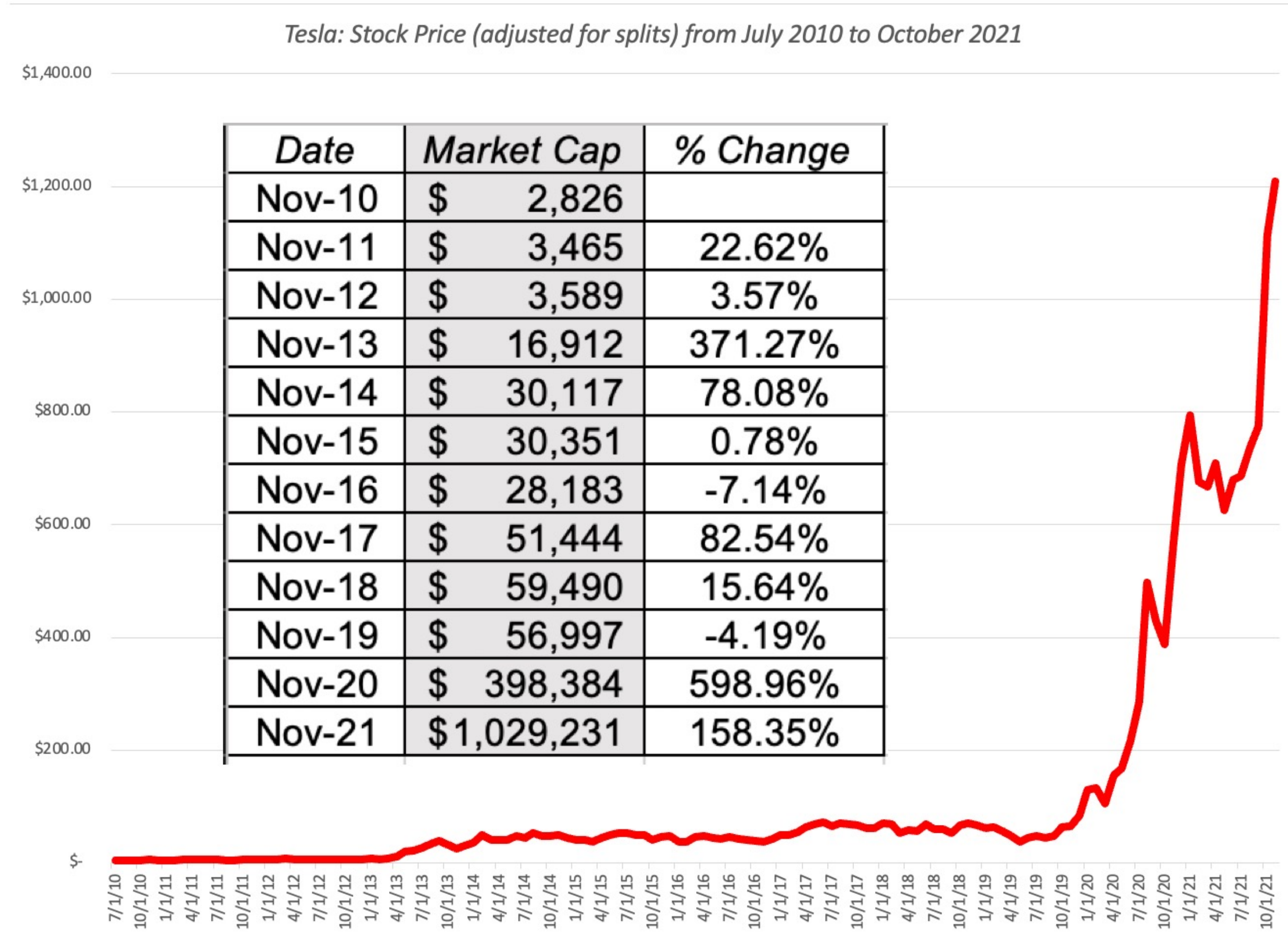
Valuation Commonalities

- At its core, Tesla is an automobile company: Notwithstanding distractions, Tesla is, at its core, an automobile company, and while it will continue to derive revenues from batteries and perhaps even software, its pathway to becoming a trillion dollar market cap company still runs through the "car company" story.
- That has disrupted and reinvented the automobile business: It is the most 'uncar-like" automobile company in the world on two dimensions.
  - The first is on *profitability,* where its operating cost structure, it's unconventional distribution model (which bypasses dealerships) and its capacity to augment revenues with related products and services, has given it an opening to deliver much higher margins.
  - The second is on *investment and capital intensity*, where it has managed to take what critics pointed to as weaknesses (unwillingness to build large and expensive assembly plants ahead of time, to meet future demand) and made them into strengths.
- While positioning itself well for structural shifts in the economy: Tesla's success over the last few years has also been fed by two other external forces. The first is in *government and business response to climate change*, and it is undeniable that Tesla, especially in its early years, was a beneficiary of tax credits and other benefits meted out to electric cars. The second is the *rise of ride sharing*, and while Tesla might not have directly benefited from this trend, it has opened up possibilities for the future, especially around self-driving cars, that have added to the company's allure.
- Built around an outsized personality: Tesla and Musk are linked, in good and bad ways, and it is almost impossible to have a view on one, without having a view on the other. On the plus side, Musk is a visionary, who sees possibilities and is an evangelist for his visions, who draws true believers to his cause. On the other side of the ledger, Musk is unpredictable and prone to distractions that draw attention away from the company, and his impulses have created costs for the company and its investors.
- Drawing extreme reactions: There are some who see Elon as the ultimate con man, and Tesla as a shell game. There are others who view him a savior, and map out pathways for Tesla to become the most successful company of all time.

Tesla in 2019 and 2020..

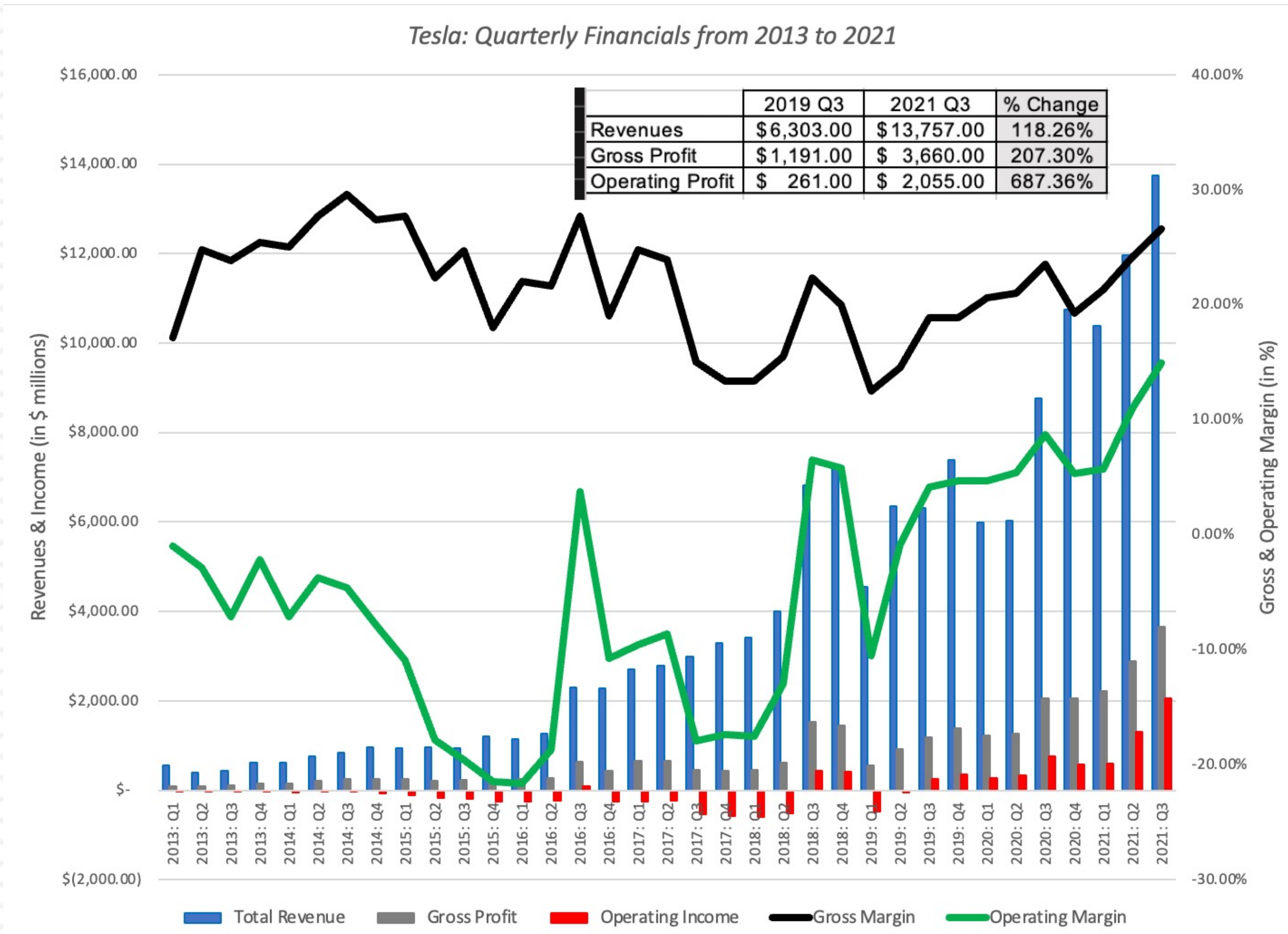
- In June 2019, Tesla had hit a rough spot, partly due to concerns about production bottlenecks and debt, and partly due to self inflicted wounds, with Musk's tweets about going private, with funding secured, contributing to a sell off driving the stock down to $180 ($36 in today's split adjusted terms). I valued the company, with conservative assumptions about growth and margins, and incorporating my concerns about managerial missteps, at about $190: While the buffer (between value and price) was small, I did buy shares in the company.
- Between June 2019 and January 2020, the stock went on a tear, as the stock price soared 250%, and I revisited my Tesla valuation. With a more expansive view of future growth and profitability, I revalued Tesla in January 2020 and more than doubled my valuation: I sold my shares then, and I know that many of you have pointed out how much money I have lost as a consequence of that sale, as the stock price has increased almost ten-fold since then, but I have never found second guessing and regrets to be useful emotions in investing.

Tesla: Stock Price History



Date	*Market Cap*	*% Change*
Nov-10	$ 2,826	
Nov-11	$ 3,465	22.62%
Nov-12	$ 3,589	3.57%
Nov-13	$ 16,912	371.27%
Nov-14	$ 30,117	78.08%
Nov-15	$ 30,351	0.78%
Nov-16	$ 28,183	-7.14%
Nov-17	$ 51,444	82.54%
Nov-18	$ 59,490	15.64%
Nov-19	$ 56,997	-4.19%
Nov-20	$ 398,384	598.96%
Nov-21	$1,029,231	158.35%

Tesla: Financial History



	2019 Q3	2021 Q3	% Change
Revenues	$6,303.00	$13,757.00	118.26%
Gross Profit	$1,191.00	$ 3,660.00	207.30%
Operating Profit	$ 261.00	$ 2,055.00	687.36%

The COVID Effect across companies

- Risk capital stayed in the game: If the most striking feature of last year's crisis was how quickly markets came back from the savage sell off between February 14 and March 23 of 2020, I argued that the biggest reason for that come back was the resilience of private risk capital. Instead of withdrawing from markets, as in prior crises, venture capital investing, initial public offerings and investment in the riskiest segments of both stock and bond markets continued, and actually increased, through the rest of the year.
- Flexibility over Rigidity: While the overall market quickly recovered, the recovery was uneven, and the crisis left behind winners and losers. In this post, I argued that one of the key dividing lines between the two groups was flexibility, with companies with more flexible investing, financing and dividend policies winning out over companies with more rigidity on those dimensions. To be specific, service/technology companies gained at the expense of manufacturing & natural resource firms, debt-light b
- Young beat old: Another factor differentiating winners and losers was that, unlike prior crises, I noted in this post that young companies (early in their life cycles) benefited at the expense of mature and aging companies (with far more of their value coming from investments in place).

Tesla: A COVID Winner

- You could argue that if central casting were creating the perfect COVID winner, it would look a lot like Tesla, a young, adaptable company in a sector filled with dinosaurs, laden with expensive manufacturing facilities, large debt burdens and legacy dividend policies.
- In fact, many of what many (including me) considered to be weaknesses (make-shift manufacturing, seat-of-the-pants financing) in the pre-COVID age became strengths during COVID.
- While conventional automobile companies shuttered and scaled down manufacturing, Tesla continued to make and sell cars through the pandemic, and it is inarguable that it has come out of this crisis, far stronger than it was going into it.

Backed up by numbers…

	2019: Q3	2019: Q4	2020: Q1	2020: Q2	2020: Q3	2020: Q4	2021: Q1	2021: Q2	2021: Q3
Revenues	$6,303.00	$ 7,384.00	$5,985.00	$6,036.00	$8,771.00	$10,744.00	$10,389.00	$11,958.00	$13,757.00
Gross Profit	$1,191.00	$ 1,391.00	$1,234.00	$1,267.00	$2,063.00	$ 2,066.00	$ 2,215.00	$ 2,884.00	$ 3,660.00
Operating Profit	$ 261.00	$ 347.00	$ 283.00	$ 327.00	$ 766.00	$ 575.00	$ 594.00	$ 1,312.00	$ 2,055.00
Revenue Growth (YoY)	-7.63%	2.19%	31.80%	-4.94%	39.16%	45.50%	73.58%	98.11%	56.85%
Gross Margin	18.90%	18.84%	20.62%	20.99%	23.52%	19.23%	21.32%	24.12%	26.60%
Operating Margin	4.14%	4.70%	4.73%	5.42%	8.73%	5.35%	5.72%	10.97%	14.94%

Tesla: An Evolving Story

Date	*Story*	*Target Revenues ($ millions)*	*Target Margin*	*Sales/ Capital*	*Cost of Capital*	*Value of Equity ($ millions)*	*Market Cap*	*% Over of Under Value*
Sep-13	Luxury auto company, with luxury car company revenues and margins.	$67,000	12.50%	1.41	10.03%	$12,146.0	$20,495.9	68.75%
Aug-17	Auto/tech company, with focus primarily on high-end auto market	$93,000	12.00%	2.24	8.83%	$33,904.0	$57,633.5	69.99%
Jun-19	High-end auto/tech company with some mass market appeal, with unpredictable management.	$105,000	10.00%	2.00	7.87%	$34,389.0	$31,755.6	-7.66%
Jan-20	Auto/tech company, with increasing mass market appeal.	$128,000	12.00%	3.00	7.00%	$84,236.0	$102,837.0	22.08%

A Look Back: My 2013 Valuation Forecasts

Tesla: My 2013 Predictions versus Actual Numbers

	My 2013 Prediction			*Actual Numbers*			*% Difference*	
Year	*Revenues*	*Operating Margin*	*EBIT*	*Revenues*	*Operating Margin*	*EBIT*	*Revenues*	*Operating Margin*
2013-14	$ 2,259	-5.47%	$ (124)	$2,436	-4.79%	-$117	7.87%	0.67%
2014-15	$ 3,840	-3.47%	$ (133)	$3,703	-10.44%	-$387	-3.56%	-6.97%
2015-16	$ 6,528	-1.48%	$ (96)	$4,568	-20.36%	-$930	-30.02%	-18.89%
2016-17	$ 11,097	0.52%	$ 58	$10,069	-6.53%	-$658	-9.27%	-7.05%
2017-18	$ 18,866	2.52%	$ 475	$13,684	-16.24%	-$2,223	-27.47%	-18.76%
2018-19	$ 29,534	4.51%	$1,333	$24,941	1.34%	$334	-15.55%	-3.18%
2019-20	$ 42,263	6.51%	$2,752	$25,708	4.74%	$1,218	-39.17%	-1.77%
2020-21	$ 54,794	8.51%	$4,661	$41,862	7.76%	$3,247	-23.60%	-0.75%
Using June-June numbers each year, since valuation was done in June 2013								

Revenues: The $41.9 billion actual revenues in 2020-21 were *23.6% lower than my estimates.*

Operating Margin: The $7.76% in operating margin in 2020-21 was 0.75% *lower than my estimates.*

Story Update for 2021

- Revenues: I do believe that Tesla will come out COVID with the potential for far more revenues than it did, going in. Specifically, I *see the potential for Tesla's revenues to approach $400 billion* (translating into ten million plus cars sold annually) by 2032, making it significantly larger than Toyota or Volkswagen (currently about $300 billion in revenues).
- Profitability: While competition from legacy car companies and newcomers in the electric car space will act as a limit on profitability, I do feel that the target margins for Tesla will be far higher than the 10-12% that I have used historically. In fact, *I will use a 16% pre-tax operating margin for Tesla by 2032*, putting it in the top strata of profitability fo manufacturing companies. (Note that notwithstanding improvements over the last few years, the gross margin for Tesla stood at less than 30% in the third quarter of 2021, acting as a cap on operating margins.)
- Reinvestment: Starting with only their Fremont plant in 2013, Tesla has not only added capacity in lumps with assembly plants/giga factories in Storey County (Nevada), Buffalo (New York), Shanghai (China), Berlin (Germany) and Austin (Texas), but has spent far less than I originally estimated that they would have to invest. Given that they now seem to have enough capacity to cover growth at least for the next three to four years, I will assume $4 in revenues for every dollar of capital invested for the next five years, and $2.67 in revenues for every dollar of capital invested thereafter.
- Risk: When I valued Tesla last in early 2020, I used a cost of capital of 7%, reflecting a risk free rate of 1.75% and an equity risk premium of 5.2% for mature markets. In November 2021, the risk free rate is down to 1.56% and equity risk premiums have drifted to 4.62%, and the cost of capital for Tesla has declined as well, to 6%. Tesla's cash balance now exceeds its debt due, and the failure risk is low enough to be ignored.
- Management: Taking to heart how closely Tesla and Elon Musk are connected, one of my concerns with Tesla has always been the sheer unpredictability of Mr. Musk. This may be flirting with danger, but whether it is because he has learned from the past or because he has matured, after the birth of his son, Elon has been subdued in his social media communication and more focused on the company.

Tesla

The Payoff to Flexibility	***Nov-21***

With the wind behind its back, Tesla has consolidated its hold on the electric car market and will continue to grow that market, at the expense of conventional car makers. As the crisis handicaps its more indebted, slower moving competitors, Tesla will consolidate its hold on the electric car market and push its production towards 2.5 million cars by 2030, it will also be able to deliver higher margins than conventional auto companies in steady state, using software sales to compliment auto sales. The drop in risk free rates has reduced its cost of capital and the chance of failure. Tesla's more flexibile investment policies will allow it to be more efficient in generating growth. While other revenue sources (green energy, driverless cars in ride sharing) will supplement revenues, it will remain at its core an electric car

The Assumptions

	Base year	*Years 1-5*	*Years 6-10*		*After year 10*	*Link to story*
Revenues (a)	$ 46,848	35.00%	1.56%		1.56%	Growth in EV market & Tesla's early mover advantage work in its favor.
Operating margin (b)	12.06%	12.06%	16.00%		16.00%	Continued economies of scale & brand
Tax rate	11.99%	11.99%	25.00%		25.00%	Global tax rate
Reinvestment (c)		Sales to capital ratio	4.00	RIR =	10.40%	Capacity build up allows for less reinvestment in the near years.
Return on capital	17.88%	Marginal ROIC =	51.66%		15.00%	Cost of entry will limit competition.
Cost of capital (d)		6.00%	6.06%		6.06%	Moves to median company cost of capital

The Cash Flows

	Revenues	*Operating Margin*	*EBIT*	*EBIT (1-t)*	*Reinvestment*	*FCFF*
1	$ 63,245	12.85%	$ 8,126	$ 7,152	$ 4,099	$ 3,053
2	$ 85,380	13.64%	$ 11,643	$ 10,247	$ 5,534	$ 4,713
3	$ 115,264	14.42%	$ 16,626	$ 14,633	$ 7,471	$ 7,162
4	$ 155,606	15.21%	$ 23,671	$ 20,833	$ 10,086	$ 10,748
5	$ 210,068	16.00%	$ 33,611	$ 29,581	$ 13,616	$ 15,966
6	$ 269,542	16.00%	$ 43,127	$ 36,834	$ 22,303	$ 14,531
7	$ 327,828	16.00%	$ 52,453	$ 43,434	$ 21,857	$ 21,577
8	$ 376,793	16.00%	$ 60,287	$ 48,353	$ 18,362	$ 29,991
9	$ 407,871	16.00%	$ 65,259	$ 50,643	$ 11,654	$ 38,988
10	$ 414,233	16.00%	$ 66,277	$ 49,708	$ 2,386	$ 47,322
Terminal year	$ 420,695	16.00%	$ 67,311	$ 50,483	$ 5,250	$ 45,233

The Value

Terminal value	$ 1,005,182		
PV(Terminal value)	$ 560,336		
PV (CF over next 10 years)	$ 126,354		
Value of operating assets =	$ 686,690		
Adjustment for distress	$ -	Probability of failure =	0.00%
- Debt & Minority Interests	$ 10,158		
+ Cash & Other Non-operating assets	$ 16,095		
Value of equity	$ 692,627		
- Value of equity options	$ 51,070		
Number of shares	1,123.00		
Value per share	$ 571.29	Stock was trading at =	$1,200.00

What's your story?

- Given my choice to sell shares in Tesla at precisely the wrong time (in January 2020) and my history of undershooting on value for the company, I am the last person you should be relying on for your Tesla investment judgments.
- I welcome disagreement, from both directions, but rather than indulge in scatter shot debates about bits and pieces, let's make it about the two key variables driving Tesla's value:

		Estimated Value of Tesla's Common Equity of today					
		Revenues in 2032 (in billions of US $)					
		200 (Daimler-like)	*$300 (Toyota-like)*	*$400 (16% Auto Mkt Share)*	*$ 600 (25% Auto Mkt Share)*	*800 (30% Auto Mkt Share)*	*1000 (40% Auto Mkt Share)*
Target Operating Margin	12%	$ 257	$ 370	$ 469	$ 666	$ 857	$ 1,049
	16%	$ 346	$ 503	$ 642	$ 918	$ 1,185	$ 1,455
	20%	$ 435	$ 636	$ 814	$ 1,169	$ 1,514	$ 1,861
	24%	$ 524	$ 769	$ 986	$ 1,421	$ 1,842	$ 2,267
	28%	$ 613	$ 902	$ 1,160	$ 1,673	$ 2,170	$ 2,673
Shaded cells: Values greater than the current market cap on November 4, 2021							

Conclusion

- In the last year and a half, I have heard from many of you about my decision to sell Tesla, and while I am thankful for your concern about my investment performance, there are a few of you who have asked me whether I was sorry that I had sold Tesla, just ahead of its stock run-up in the last year and a half.
  - I would be lying if I said that I did not think about the money I could have made, by holding on, when the stock crossed a trillion-dollar market cap, but those second thoughts have been fleeting and I have no accompanying regret.
  - Like everyone else, I would rather make money on my investments, than lose money, but I would also rather leave money on the table and have an investment philosophy, flawed though it may be, than make money and end up without a core philosophy.
- I can say with certainty that I will be back valuing Tesla some time in the future, either because it has crossed a new threshold or because it is in the news, for good and bad reasons. I will also predict that Tesla will be back in my portfolio some day in the future, but at a price that I can live with, as an investor.