August 31, 2020

Friends and Fellow Investors:

For August 2020 the fund was down 15.4% net of all fees and expenses. By way of comparison, the S&P 500 was up 7.2% while the Russell 2000 was up 5.6%. Year-to-date 2020 the fund is down 20.9% while the S&P 500 is up 9.7% and the Russell 2000 is down 5.5%. Since inception on June 1, 2011 the fund is up 21.7% net while the S&P 500 is up 215.5% and the Russell 2000 is up 109.5%. Since inception the fund has compounded at 2.2% net annually vs 13.2% for the S&P 500 and 8.3% for the Russell 2000. (The S&P and Russell performances are based on their "Total Returns" indices which include reinvested dividends. The fund's performance results are approximate; investors will receive exact figures from the outside administrator within a week or two. Please note that individual partners' returns will vary in accordance with their high-water marks.)

What the hell happened this month, and for that matter, the first eight months of 2020?

The short answer is: I'm a "long value/short bubbles" investor in a market where "the bubbles" are hugely outperforming "the value," and thus losses from our short positions overwhelmed the gains from our longs, which on their own are up considerably.

Now, here are the long answers, and why I think things are about to turn around for us...

First, here is the approximate year-to-date (for stocks we've held since January 1) or "since purchase" (for stocks bought during 2020) **performance for our longs**; these figures are approximate because I've added to or trimmed these positions along the way, sometimes booking profits at higher or lower levels:

ASYS: +43% AVNW: +54% DAIO: +23% EVOL: +14%

(I also took profits on approx. 40% of our EVOL on a no-news spike into the \$1.30s, +40% from our basis)

GLD: **+14%** JCS: **+0%**

(I also sold a substantial part of our JCS position this year in the \$5s, for a small gain.)

WSTL: **+19%**

(Except for a tiny stub position I sold our WSTL this summer.)

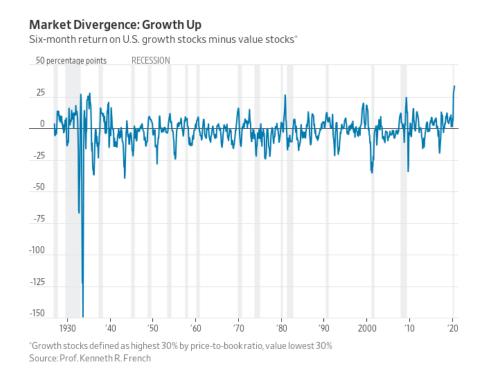
Meanwhile, year-to-date the Russell 2000 Value ETF (ticker IWN), the nearest benchmark for these positions excluding GLD, is *down over 18%*, so our microcap long stock picking skills have been solid. However...

Against these positions (due to the market's tremendous decoupling from economic reality), we carried (primarily as a hedge against our longs) a QQQ short position averaging around 20% larger than the size

of our combined longs (as the microcaps tend to be more volatile), and year-to-date QQQ is up 39%. (In late August I reduced the size of our QQQ short—more on that below.)

Additionally, we've carried a Tesla short position that averaged only around 1/5th the size of the QQQ short (i.e., approximately 10% to 15% of the fund), but year-to-date Tesla (the biggest bubble in modern stock market history) is up an astounding 495% (to a fully diluted market cap of approximately \$515 billion vs. \$523 billion for Toyota, VW, GM, Daimler, BMW, Ford, Fiat-Chrysler, Honda and Nissan combined), and that hurt us significantly. So our short positions have obliterated the profits from our long positions, and yet when this bubble pops we'll be glad we have them.

The dichotomy between our longs and our shorts is well illustrated in this chart showing a *record* divergence between the performance of "growth stocks" vs. "value stocks," yet I believe that as has *always* happened in the past, this will mean-revert in our favor:



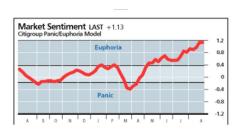
As mentioned above, in late August I did reduce our QQQ short, to the point where it's now approximately 2/3 the combined value of our longs; this leaves us a bit more "naked long" than I'd like to be in the current environment, but a Federal Reserve pledging to leave rates at zero for years so it can ruin Americans' purchasing power has been a hell of a painful headwind.

Why, then, maintain this QQQ short at all? I have a "near-term reason" and a "long-term reason." Near-term, bullish speculation is (literally) off the charts: for the last two weeks the Put-Call ratio for Nasdaq 100 constituent stocks closed at the extremely low (i.e., "complacent") level of 0.42 and intra-day today

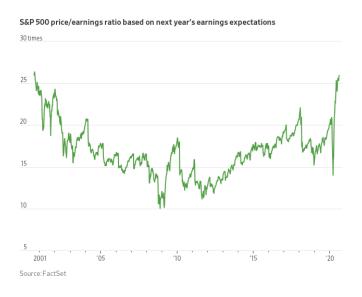
it hit 0.21, which may be the lowest level *ever*. Meanwhile, <u>@SentimenTrader</u> points out that call option buying as a percentage of NYSE volume *far* exceeds that of the 2000 bubble era...



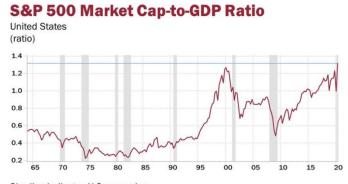
...while ohmeisler shows us that Citi's Panic/Euphoria index is well into "Euphoria" mode—by far the highest it's been since the bubble peak in 2000 (when it hit approximately 1.5):



Valuation-wise, on a forward PE basis, the S&P 500 is now at the peak of the 2000 bubble...



...while as a percentage of GDP the S&P 500 now exceeds the 2000 bubble's peak...

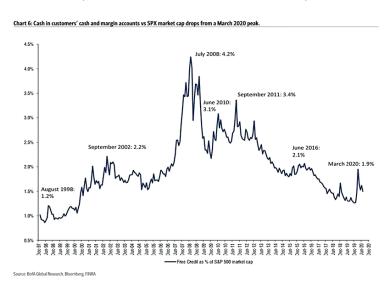


Shading indicates U.S. recession Source: Haver Analytics, Rosenberg Research

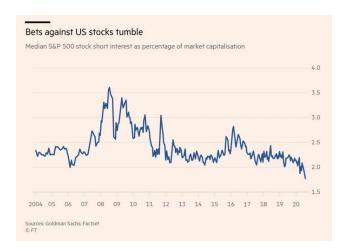
...and the broader stock market (the Wilshire 5000) hugely exceeds the 2000 peak:



And from <u>@ISABELNET_SA</u> we can see that available buying credit (cash) in customer accounts as a percentage of S&P 500 market cap is down near the level it was at the peak of the 2000 bubble...



...while as @Fxhedgers points out, there are almost no shorts left:



So "excessive bullishness & complacency" is the *near-term* reason why I maintain our QQQ short position. *Medium-to-longer-term* I believe the Federal Reserve's endless money-printing combined with massively profligate deficit spending from both parties in Washington and growth-retarding levels of debt will return us to an environment similar to the stagflationary 1970s; i.e., slow growth and high inflation (which we got a hint of this month). In that environment, high-flying stocks (such as the QQQ we're short) will suffer massive PE multiple compression, and gold (which we're long) will climb steadily. Have a look at what happened to S&P 500 PE ratios during the decade of the 1970s, beginning in 1974 when inflation really took off:

Jan 1, 1980	7.39
Jan 1, 1979	7.88
Jan 1, 1978	8.28
Jan 1, 1977	10.41
Jan 1, 1976	11.82
Jan 1, 1975	8.30
Jan 1, 1974	11.68
Jan 1, 1973	18.09
Jan 1, 1972	18.01
Jan 1, 1971	18.12
Jan 1, 1970	15.76

By way of comparison, the current TTM GAAP PE ratio on the S&P 500 is approximately 36, and it's 38 on the Nasdaq 100.

For those who believe that a 38x Nasdaq PE ratio is justified because interest rates are currently so low and "there is no alternative," I'll point out that Japan has spent decades with similar rates yet PEs there are far lower (currently around 23x on the Nikkei 225), and in that time Japan has experienced multiple bear markets. Why? Because ultimately it's growth not interest rates that get people to "pay up" for stocks. For example, as recently as May 2004 the Fed Funds Rate was just 1%, yet the GAAP PE ratio for the S&P 500 was just 20x, which is 44% lower than today's 36x. In other words, money can always find "an alternative," and if real-world inflation takes off there will be alternative places to invest regardless of how artificially low the Fed caps Treasury rates—real estate, floating rate private-sector lending, commodities, etc., will all offer far better returns than those "capped" (until the Fed eventually loses control) Treasury rates.

As one last example of what a bubble this market is, let's have a look at earnings "improvement" since 2015 for Apple, which is now Nasdaq's (and the world's) largest company by market cap. Although we have no direct position, it's the largest constituent of QQQ:

Apple's 2015 net income: \$53.4 billion

Apple's August 2020 TTM net income: \$58.4 billion Five-year increase in Apple's net income: 9.4%

Compounded annual increase: 1.8%

So in five years Apple's net income is up just 9.4% (and that's likely *entirely* due to Trump's large corporate tax cut, much of which a Biden administration would rescind). Yet during that same period Apple's market cap increased from roughly \$650 billion to approximately \$2.2 trillion! (Yes, a *somewhat* higher percentage of today's revenue is considered to be "recurring," but nowhere NEAR enough to justify *that* kind of craziness!)

So in summary, I continue to maintain significant short positions in this environment and hope you'll stick with the fund despite its awful performance; if nothing else, we're a partial hedge against the overwhelmingly long bias of *most* stock portfolios.

Here then are the fund's specific positions, beginning with the longs; please note that we may add to or reduce position sizes as stocks approach or recede from our target prices...

We continue to own Aviat Networks, Inc. (ticker: AVNW), a designer and manufacturer of point-to-point microwave systems for telecom companies, which in August reported a solid Q4 for FY 2020, with COVID-affected revenue down slightly vs. the year-ago quarter but earnings, EBITDA and backlog up substantially, with management guiding to meaningful growth on both the top and bottom lines for FY 2021 (which began this past July). In January Aviat's board (controlled by activist investor Warren Lichtenstein) appointed a new CEO and the accompanying press release made it quite clear (based on his experience) that he was brought in to dress up the company and get it sold. Meanwhile, Aviat's closest pure-play

competitor Ceragon (CRNT) sells at an EV of approximately 0.65x revenue. If we assume \$240 million in annual revenue for Aviat, \$33 million of net cash and a (*very* conservative) \$10 million valuation on a combination of \$404 million of U.S. NOLs, \$8 million of U.S. tax credit carryforwards, \$189 million of foreign NOLs and \$2.6 million of foreign tax credit carryforwards, we get a current fair market valuation of $0.65 \times $240 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $180 = $$

We continue to own Data I/O Corporation (DAIO), a manufacturer of semiconductor programming devices. We previously owned this stock in 2016 when we bought it in the \$2s and sold it a year later in the \$4s and \$5s (it eventually ran to the \$16s before collapsing, as it got way ahead of itself as new holders failed to account for its cyclicality), and now we've repurchased it for another run. In 2019 (a year that without 2020's COVID would have marked a cyclical low for the company) DAIO did \$21.6 million in revenue with a 58% gross margin. In August it reported a COVID-affected Q2, in which it did \$4.7 million in revenue (still with a 52.4% gross margin) accompanied by an \$878,000 operating loss, but negative free cash flow was only \$438,000 and the company ended the quarter with \$13.3 million in cash and no debt, and with its increased backlog & bookings should be able to return to profitability within a couple of quarters. Using 2019's revenue and valuing DAIO at 2x that cyclically low figure (this company is much more levered to customer technology cycles than economic cycles), then adding in \$13 million of cash would make this stock worth around \$6.80/share.

We continue to own Amtech Systems, Inc. (ASYS), a manufacturer of semiconductor production and automation systems, which in August reported a breakeven Q2 that was down (revenue-wise) 28% year-over-year (due to COVID) and roughly flat with Q1. Disappointingly, the company guided to no revenue improvement in Q3 and a decline in earnings. Nevertheless, this is a mid-30% gross margin company that does around \$80 million a year in normalized (ex-COVID) revenue with around \$4 million/year in operating income (again, ex-COVID), and has around \$39 million in net cash and over \$80 million in NOLs. If we subtract \$1 million from Amtech's cash to account for two more quarters of "COVID hit," then value the company at 1x normalized revenue with \$8 million for the NOLs, we get fair value of around \$9/share. The biggest risk here (other than underestimating "the COVID effect") is that management—which *is* acquisitive—blows that cash pile on something stupid.

We continue to own Evolving Systems, Inc. (EVOL), a small telecom services marketing company that in August reported a solid Q2 (considering the COVID situation), with revenue up a tiny bit vs. both year-over-year and the previous quarter. EVOL generates over \$1 million/year in free cash flow on \$25 million of 65% gross margin revenue and would make a great buy for a strategic acquirer, as \$1.5 million/year in savings from eliminating the C-suite and cost of being a standalone public company would mean around \$2.5 million/year in free cash flow. Thus, at an acquisition price of just \$2.25/share (a more than 100% premium to the current price) a buyer would be paying only around 10x free cash flow and 1x revenue (inclusive of .25/share in net cash).

We continue to own Communications Systems, Inc. (ticker: JCS), an IOT ("Internet of Things") and internet connectivity & services company, although I reduced the position size considerably when in August it reported Q2 revenue up a very nice 5% sequentially, but accompanied by a very ugly \$1.6 million operating loss. Although this company is still cheap on an EV-to-revenue basis (it has around \$2.60/share in net cash), a combination of that Q2 operating loss plus management's headline in the earnings release that it's "seeking new acquisitions" (which I read as "potentially blowing a beautiful balance sheet on something stupid") mean that I now have a "wait and see" attitude and no longer want to carry a position that's as large as it was previously.

As discussed in last month's letter, in July <u>Westell Technologies Inc.</u> (WSTL) <u>announced</u> the most shareholder-unfriendly move I've ever seen, a "go-dark" transaction whereby it plans to delist from Nasdaq and stop filing SEC statements without buying out any shareholders except "odd-lot" owners of fewer than 1000 shares (at \$1.48/share). This forced us to sell our entire position to "odd-lot arbs" at a considerable discount (low \$1s) ahead of the proposed September transaction, and we're now out of the stock completely except for our own remaining "odd lot" of 999 shares.

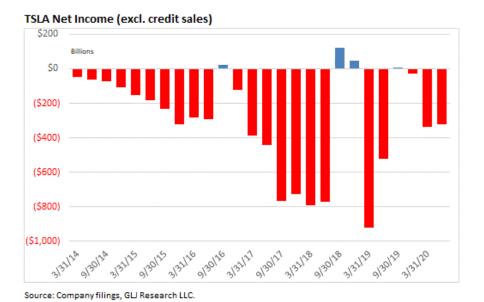
Finally on the long side, as central banks increase their money-printing to ever higher levels in order to fund multi-trillion-dollar annual deficits, we continue to hold a substantial long position in the gold ETF (GLD); the likelihood of negative real interest rates for years to come adds a substantial tailwind to this position.

As mentioned at the beginning of this letter, we remain short Tesla Inc. (TSLA), which—with a diluted market cap of approximately \$515 billion vs. \$523 billion for Toyota, VW, GM, Daimler, BMW, Ford, Fiat-Chrysler, Honda and Nissan combined—is the biggest stock bubble in modern history. The core points of our Tesla short thesis are:

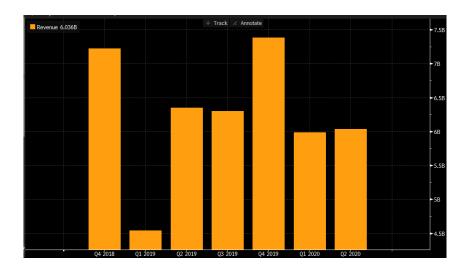
- 1) Tesla has no "moat" of any kind; i.e., nothing meaningfully proprietary in terms of electric car technology, while existing automakers—unlike Tesla—have a decades-long "experience moat" of knowing how to mass-produce, distribute and service high-quality cars consistently and profitably, as well as the ability to subsidize losses on electric cars with profits from their conventional cars.
- 2) Excluding sunsetting emission credit sales, in 2020 Tesla will again lose money, as it has every year in its 17-year existence.
- 3) Tesla is now a "busted growth story"; average quarterly revenue has been roughly flat since Q4 2018, while unit demand for its cars is only being maintained via massive price cutting.
- 4) Elon Musk is a securities fraud-committing pathological liar.

After being up 229% year-to-date through August 11th despite a core business that's going *nowhere*, Tesla announced a 5-for-1 stock split and—and no other meaningful news whatsoever—is now up 495% year-to-date, adding \$230 billion of market cap purely on the announcement of the split. Need I say more about what an insane bubble this stock is? Okay, I'll say more...

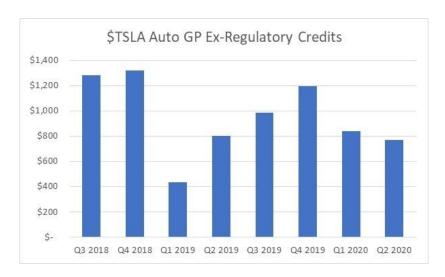
In July Tesla reported Q2 net income of \$104 million, which was *laughably* deceptive as it included \$428 million of pure-profit emission credit sales, a revenue stream that will be <u>drastically reduced later this</u> <u>year</u> and disappear completely some time in 2021 when other manufacturers have enough EVs of their own. Excluding that, Tesla *lost* \$324 million, and that's before accounting for its <u>fraudulently low warranty reserve</u>. As for other blatant examples of nonsensical or unsustainable accounting, <u>@WallStCynic</u> points out: "D&A was down (!) Y/Y, despite a new factory coming online. SG&A + R&D was also down Y/Y." Here are some great charts summarizing the quarter, beginning with one from <u>GLJ Research</u> showing Tesla's awful record of quarterly net income excluding emission credit sales:



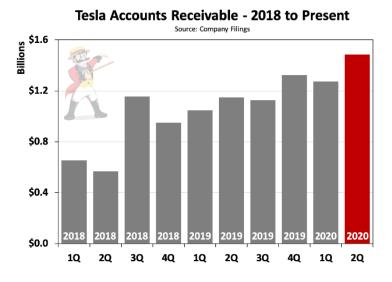
Next, @Keubiko wrote on Twitter: "Last 7 Qs of revenue. At some point you have to actually grow."



From <u>@fundiescapital</u>, here's Tesla's automotive gross profit excluding regulatory credits:



From <u>@TeslaCharts</u>: "Accounts receivable growing while revenue is shrinking for a company that demands payment before delivery. Nothing to see here."



Additionally, Q2's automotive delivery number was only achievable via a large increase in Chinese sales filling short-term demand spurred by massive 2020 price cuts, but China's EV competitive landscape is now getting *vicious*, and in August we learned that <u>Tesla's July sales were down considerably from those in June</u>, and the price war there <u>is just getting started</u>. Meanwhile Tesla's Q2 worldwide sales excluding China were <u>down over 30%</u>. And oh, for perspective: in Q2 Tesla sold approximately 30,000 cars in China; GM sold 713,000.

And for those of you looking for a resumption of growth from Tesla's Model Y, demand for that car is so poor that Tesla is already slashing its price:

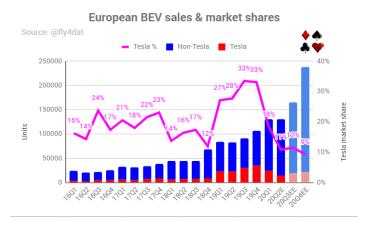


This is unsurprising, as <u>its quality is *awful*</u>, and later this year and in 2021 it will face superior competition from the much nicer electric <u>Audi Q4 e-tron</u> and <u>Q4 e-tron Sportback</u>, <u>BMW iX3</u> (in Europe & China), <u>Mercedes EQB</u>, <u>Volvo XC40</u>, <u>Volkswagen ID.4</u> and <u>Nissan Ariya</u>, while less expensive and available now are the excellent all-electric <u>Hyundai Kona</u> and <u>Kia Niro</u>, <u>extremely well reviewed</u> small crossovers with an EPA range of 258 miles for the Hyundai and 238 miles for the Kia, at prices of under \$30,000 inclusive of the \$7500 U.S. tax credit. Meanwhile, the Model 3 now has terrific direct "sedan competition" from Volvo's <u>beautiful new Polestar 2</u> and the premium version of <u>Volkswagen's ID.3</u>, and next year from the <u>BMW i4</u>.

And oh, the joke of a "pickup truck" Tesla previewed last year won't be any kind of "growth engine" either, especially as if it's ever built it will enter a dogfight of a market.

Nothing's more amusing than seeing this giant stock promotion of a company continue to add capacity (expanding its Chinese factory while supposedly breaking ground on new factories in Texas and Germany) in order to desperately try to maintain an image of "limitless demand" as it continually slashes prices to unprofitable levels (excluding unsustainable emission credit sales and accounting fraud) just to utilize far less than its existing capacity.

And for those who still think "Tesla is years ahead of the competition," the most competitive EV region in the world is Europe, and Tesla's EV market share there has now declined from over 30% to a year-end estimate of single digits. Courtesy of Twitter user offly4dat, here's a great graph showing that:



And in the high-end segment worldwide, the Audi eTron now outsells either of Tesla's offerings (the Model S and the Model X)...

07/16/20 | Ingolstadt | Models

Audi e-tron Is World Market Leader in Its Segment



- Audi e-tron the top-selling electric SUV in Europe
- Deliveries of the model increased by 86.8 percent as compared to previous year
- Electric offensive continues to gather pace with e-tron GT and Q4 e-tron models

Meanwhile, in July Tesla was hit with a well-documented <u>sudden acceleration class action lawsuit</u>, and in May it was <u>revealed</u> that for years it deliberately sold cars that it knew were a fire hazard. And of course Tesla continues to sell and promote its hugely dangerous so-called "Autopilot" system; God only knows how many <u>more people</u> this <u>monstrosity unleashed on public roads</u> will kill, despite February's <u>NTSB hearing condemning it as dangerous</u>. Indeed, when it comes to the safety of customers and innocent bystanders, Tesla is truly one of the most vile companies on Earth, while its initial quality is ranked *dead last* among 31 brands J.D. Power surveyed:

J.D. Power 2020 U.S. Initial Quality StudySM **Brand Ranking** Problems per 100 Vehicles (PP100) Dodge Kia 136 Chevrolet Ram 141 Genesis Mitsubishi 142 148 GMC 151 Volkswagen 152 Hyundai 153 155 Jeep Lexus 159 161 Nissan Cadillac Industry Average 166 Infiniti Ford MINI BMW 176 Honda Toyota Lincoln 177 Mazda Acura 185 Porsche 186 Subaru 187 Chrysler Jaguar 190 Volvo 210 Audi Land Rover

And here's a great graphic from @clausMller17 showing Tesla's blatantly fraudulent range claims:

Based on InsideEV article her	e:		
https://insideevs.com/news/4078	307/eletric-car-	real-world-rar	nge-tested/
Model	EPA Miles	Realworld	Overstated
Jaguar I-Pace	234	253	-8,1%
BMW i3	153	165	-7,8%
Kia Niro	239	253	-5,9%
Hyundai Kona	258	259	-0,4%
Audi E-tron	204	196	3,9%
Nissan Leaf e+	226	217	4,0%
Renault ZOE R135*	202,3	192	5,19
Mercedes-Benz EQC*	220,15	208	5,5%
Tesla Model X P100D	289	233	19,49
Tesla Model 3 Performance	299	239	20,19
Tesla Model S 75	259	204	21,29
Tesla Model 3 SR	250	181	27,69
0	-1		22.40
Average overstatement by Te	isia.		22,19
Average overstatement all ot	hers than Tes	da.	-0,5%

Meanwhile, Tesla has the most executive departures I've ever seen from *any* company; here's the astounding full list of escapees. These people aren't leaving because things are going great (or even passably) at Tesla; rather, they're likely leaving because Musk is either an outright crook or the world's biggest jerk to work for (or both). And in January Aaron Greenspan of @PlainSite published a terrific treatise on the long history of Tesla fraud; please read it!

Consumer Reports has completely eviscerated the safety of Tesla's so-called "Autopilot" system; in fact, Teslas have far more pro rata (i.e., relative to the number sold) deadly incidents than other comparable new luxury cars; here's a link to those that have been made public. Meanwhile Consumer Report's annual auto reliability survey ranks Tesla 23rd out of 30 brands (and that's with many stockholder/owners undoubtedly underreporting their problems—the real number is almost certainly much worse), and the number of lawsuits of all types against the company continues to escalate—there are now over 800 including one proving blatant fraud by Musk in the SolarCity buyout (if you want to be really entertained, read his deposition!).

So here is Tesla's competition in cars (note: these links are regularly updated)...

Porsche Taycan
Porsche Taycan Cross Turismo
Porsche Macan EV to get Taycan platform and tech

Audi e-tron: Electric Has Gone Audi

2020 Audi E-Tron Sportback debuts slick new roofline, a bit more range

AUDI E-TRON GT FIRST DRIVE: LOOK OUT, TESLA (available 2020)

2021 Audi Q4 e-tron Will Be the Cheapest Electric Audi

Audi adding Sportback version of 2021 Q4 e-tron

Audi TT set to morph into all-electric crossover

Jaguar i-Pace

Jaguar Land Rover to invest £1bn in three new UK-built EVs

Mercedes EQC electric SUV available now in Europe & China and in 2021 in the U.S.

Mercedes-Benz Launches the EQV, its First Fully-Electric Passenger Van

Mercedes EQA electric SUV previewed in exclusive images

Mercedes EQB Small SUV to boost brand's electric line-up

Mercedes EQS will be built in addition to the S-Class on a new dedicated electric platform

Volvo Polestar 2 Arrives 2020

Polestar 3 will be an electric SUV that shares its all-new platform with next Volvo XC90

Volvo XC40 Recharge, a 408-HP Electric SUV comes in 2020

Volvo confirms electric version of next XC90

Volkswagen ID.3 Deliveries Begin September 2020

VW ID.4: Wolfsburg's Upcoming EV Crossover

VW Group's first hot compact EV to be launched by Cupra brand

VW Group to launch 70 pure electric cars over the next decade

GM Will Have Twelve Electric Vehicles Soon

Hyundai Kona Electric: 258-mile range & under \$38,000 before subsidies

Hyundai set to turn Ioniq name into a global EV brand

Genesis Electric Luxury SUV Coming in 2022

Kia Niro Electric: 239-mile range & \$39,000 before subsidies

Kia Soul Electric: 243-mile range

New 2021 electric Kia SUV to offer Porsche Taycan pace with 0-62mph in 3s

All-Electric Ford Mustang Mach-E Delivers Power, Style and Freedom for New Generation

The Electric Ford F-150 Will Be Here by Mid-2022

Ford to build two European EVs based on VW's MEB platform

Nissan vows to hop back on EV podium with Ariya

Nissan LEAF e+ with 226-mile range is available now

BMW leads off EV offensive with iX3

Electric BMW iX1 SUV set for production

The BMW i4 EV Will Be the Most Powerful 4-Series

BMW iX (iNEXT) electric SUV comes in 2021 in three flavors, from 300 to 600 HP

Rivian electric pickup truck- funded by Amazon, Ford, Cox & others- is on the way

Renault upgrades Zoe electric car as competition intensifies

New all-electric Renault SUV to arrive in next 18 months

Peugeot 208 to electrify Europe's small-car market

Peugeot to offer EV version of new 2008 small crossover

Electric Mini Arrives 2020

Toyota and Subaru Agree to Jointly Develop BEV-dedicated Platform and BEV SUV

Mazda extends MX name to new MX-30 electric crossover

Opel sees electric Corsa as key EV entry

2021 Vauxhall Mokka revealed as EV with sharp looks, massive changes

<u>Škoda electric Enyaq to come in 5 variants</u>

New Citroen C4 Cactus to be first electrified Citroen in 2020

FCA to invest \$788M to build new 500 EV in Italy

BYD will launch electric SUV in Europe

The Lucid Air Achieves an Estimated EPA Range of 517 Miles on a Single Charge

Maserati to launch electric sports car

Bentley Will Offer Hybrid Versions of Every Car It Makes and Add an EV by 2025

Lucid Motors closes \$1 billion deal with Saudi Arabia to fund electric car production

Meet the Canoo, a Subscription-Only EV Pod Coming in 2021

Two new electric cars from Mahindra in India; Global Tesla rival e-car soon

Former Saab factory gets new life building solar-powered Sono Sion electric cars

And in China...

VW ramps up China electric car factories, taking aim at Tesla

Volkswagen pumps 2 billion euros into China electric vehicle bet

Audi Q2L e-tron debuts at Auto Shanghai

Audi will build Q4 e-tron in China

FAW-Volkswagen's Foshan plant said to produce e-tron Sportback

FAW Honggi starts selling electric SUV with 400km range for \$32,000

FAW (Hongqi) to roll out 15 electric models by 2025

China's BYD launches six new electrified vehicles

Daimler & BYD launch new DENZA electric vehicle for the Chinese market

Geely, Mercedes-Benz launch \$780 million JV to make electric smart-branded cars

Mercedes styled Denza X 7-seat electric SUV to hit market

Mercedes 'makes mark' with China-built EQC

Daimler and BMW to cooperate on affordable electric car in China

BMW, Great Wall to build new China plant for electric cars

BAIC Goes Electric, & Establishes Itself as a Force in China's New Energy Vehicle Future

BAIC BJEV, Magna ready to pour RMB2 bln in all-electric PV manufacturing JV

Toyota, BYD will jointly develop electric vehicles for China

Lexus to launch EV in China taking on VW and Tesla

GAC Toyota to ramp up annual capacity by 400,000 NEVs

GAC Aion

GAC NIO kicks off delivery of HYCAN 007 all-electric SUV

Chevrolet Menlo Electric Vehicle Launched in China

Buick Launches VELITE 6 PLUS MAV Electric Vehicle in China

Buick Velite 7 EV And Velite 6 PHEV Launch In China

General Motors' Chinese Venture to Sink \$4.3 Billion Into Electric Vehicles by 2024

Nissan & Dongfeng to invest \$9.5 billion in China to boost electric vehicles

Dongfeng's premium EV-focused "VOYAH" unveiled as independent brand

PSA to accelerate rollout of electrified vehicles in China

Fiat Chrysler, Foxconn Team Up for Electric Vehicles

Hyundai Motor Transforming Chongging Factory into Electric Vehicle Plant

Polestar said to plan China showroom expansion to compete with Tesla

Nio

Jaguar Land Rover's Chinese arm invests £800m in EV production

Renault reveals series urban e-SUV K-ZE for China

Renault & Brilliance detail electric van lineup for China

Renault forms China electric vehicle venture with JMCG

Honda Debuts New Everus VE-1 All-Electric SUV, But Only For China

Honda to roll out over 20 electric models in China by 2025

Geely launches new electric car brand 'Geometry' – will launch 10 EVs by 2025

Mazda to roll out China-only electric vehicles by 2020

Xpeng Motors sells multiple EV models

Changan New Energy

WM Motors/Weltmeister

Chery

Seres

Enovate

Evergrande Hengchi

China's cute Ora R1 electric hatch offers a huge range for less than US\$9,000

Singulato

JAC Motors releases new product planning, including many NEVs

Seat to make purely electric cars with JAC VW in China

Iconiq Motors

Hozon

Aiwavs

NEVS launches electric-car output with Saab 9-3 platform in China

Youxia

CHJ Automotive begins to accept orders of Leading Ideal ONE

Infiniti to launch Chinese-built EV in 2022

Zotye Auto to roll out 10 plus NEV models by 2020

Skywell makes inroads into China's NEV domain

Thunder Power

Leapmotor

Continental, Didi sign deal on developing EVs for China

Human Horizons

Mine Mobility (Thailand)

Here's Tesla's competition in autonomous driving...

Consumer Reports finds Tesla's Navigate on Autopilot is far less competent than a human driver

Navigant Ranks Tesla Last Among Automakers & Suppliers for Automated Driving

Tesla has a self-driving strategy other companies abandoned years ago

Fiat Chrysler, Waymo expand self-driving partnership for passenger, delivery vehicles

Waymo and Lyft partner to scale self-driving robotaxi service in Phoenix

Volvo, Waymo partner to build self-driving vehicles

Jaguar and Waymo announce an electric, fully autonomous car

Renault, Nissan partner with Waymo for self-driving vehicles

Voyage Partners with FCA to Deliver Fully Driverless Cars

Hyundai and Kia Invest in Aurora

Aptiv and Hyundai Motor Group complete formation of autonomous driving joint venture

Cadillac Super Cruise™ Sets the Standard for Hands-Free Highway Driving

Honda Joins with Cruise and General Motors to Build New Autonomous Vehicle

SoftBank Vision Fund to Invest \$2.25 Billion in GM Cruise

Ford's electric Mustang will offer hands-free driving technology in 2021

Ford-VW alliance with Argo could redraw self-driving sector

VW taps Baidu's Apollo platform to develop self-driving cars in China

Amazon Buys Driverless Startup Zoox, Cites Ride-Hailing Goal

Nvidia and Mercedes Team Up to Make Next-Gen Vehicles

Daimler's heavy trucks start self-driving some of the way

SoftBank, Toyota's self-driving car venture adds Mazda, Suzuki, Subaru Corp, Isuzu Daihatsu

Continental & NVIDIA Partner to Enable Production of Artificial Intelligence Self-Driving Cars

Mobileye & multiple OEMs

Nissan gives Japan version of Infiniti Q50 hands-free highway driving

Hyundai to start autonomous ride-sharing service in Calif.

Uber unveils next-generation Volvo self-driving car

Pony.ai raises \$462 million in Toyota-led funding

Baidu kicks off trial operation of Apollo robotaxi in Changsha

Toyota to join Baidu's open-source self-driving platform

Baidu, WM Motor announce strategic partnership for L3, L4 autonomous driving solutions

Baidu plans to mass produce Level 4 self-driving cars with BAIC by 2021

DiDi completes over \$500M fundraising round for its autonomous driving subsidiary

Geely selects Volvo, Veoneer joint venture as autonomous tech supplier

BMW and Tencent to develop self-driving car technology together

BMW, NavInfo bolster partnership in HD map service for autonomous cars in China

FAW Hongqi readies electric SUV offering Level 4 autonomous driving

Tencent, Changan Auto Announce Autonomous-Vehicle Joint Venture

Huawei steps up ambitions in self-driving vehicles race

BYD partners with Huawei for autonomous driving

Lyft, Magna in Deal to Develop Hardware, Software for Self-Driving Cars

Deutsche Post to Deploy Test Fleet Of Fully Autonomous Delivery Trucks

ZF autonomous EV venture names first customer

Magna's new MAX4 self-driving platform offers autonomy up to Level 4

Groupe PSA's safe and intuitive autonomous car tested by the general public

Mitsubishi Electric to Exhibit Autonomous-driving Technologies in New xAUTO Test Vehicle

Apple acquires self-driving startup Drive.ai

Momenta – Building Autonomous Driving Brains

JD.com Delivers on Self-Driving Electric Trucks

NAVYA Unveils First Fully Autonomous Taxi

Fujitsu and HERE to partner on advanced mobility services and autonomous driving

Lucid Chooses Mobileye as Partner for Autonomous Vehicle Technology

Nuro's Robot Delivery Vans Are Arriving Before Self-Driving Cars

Here's where Tesla's competition will get its battery cells...

Panasonic (making deals with multiple automakers)

LG

Samsung

SK Innovation

Toshiba

CATL

BYD

Northvolt (backed by VW & BMW)

<u>Ultium (General Motors & LG joint venture)</u>

UK companies AMTE Power and Britishvolt plan \$4.9 billion investment in battery plants

Verkor

Farasis

Microvast

Akasol

Cenat

Wanxiang

Eve Energy

Svolt

Saft

Romeo Power

Solid-state batteries on track at Toyota

ProLogium Technology Will Produce First Next Generation Lithium Ceramic Battery For EVs

BMW invests in Solid Power solid-state batteries

Ford invests in Solid Power solid-state batteries

Hyundai Motor developing solid-state EV batteries

Most car makers will use those battery cells to manufacture their own packs. Here are some examples:

Daimler starts building electric car batteries in Tuscaloosa - one of 8 battery factories

GM picks Lordstown site for \$2.3 billion battery plant

GM inaugurates battery assembly plant in Shanghai

PSA to assemble batteries for hybrid, electric cars in Slovakia

Honda Partners on General Motors' Next Gen Battery Development

France's Saft plans production of next-gen lithium ion batteries from 2020

Sokon aims to be global provider of battery, electric motor, electric control systems

BMW Group invests 200 million euros in Battery Cell Competence Centre

BMW Brilliance Automotive opens battery factory in Shenyang

Rimac is going to mass produce batteries and electric motors for OEMs

Here's Tesla's competition in charging networks...

Electrify America is spending \$2 billion building a high-speed U.S. charging network GM, EVgo partner to expand U.S. charging network

191 U.S. Porsche dealers are installing 350kw chargers

ChargePoint to equip Daimler dealers with electric car chargers

GM and Bechtel plan to build thousands of electric car charging stations across the US

Ford introduces 12,000 station charging network, teams with Amazon on home installation

Petro-Canada Introduces Coast-to-Coast Canadian Charging Network

Volta is rolling out a free charging network

<u>Ionity has over 150 European 350kw charging stations</u>

E.ON and Virta launch one of the largest intelligent EV charging networks in Europe

Volkswagen plans 36,000 charging points for electric cars throughout Europe

Smatric has over 400 charging points in Austria

Allego has hundreds of chargers in Europe

PodPoint UK charging stations

BP Chargemaster/Polar is building stations across the UK

Instavolt is rolling out a UK charging network

Fastned building 150kw-350kw chargers in Europe

Aral To Install Over 100 Ultra-Fast Chargers In Germany

Deutsche Telekom launches installation of charging network for e-cars

Shell starts rollout of ultrafast electric car chargers in Europe

Total to build 1,000 high-powered charging points at 300 European service-stations

Volkswagen, FAW Group, JAC Motors, Star Charge formally announce new EV charging JV

BP, Didi Jump on Electric-Vehicle Charging Bandwagon

Evie rolls out ultrafast charging network in Australia

Evie Networks To Install 42 Ultra-Fast Charging Sites In Australia

And here's Tesla's competition in storage batteries...

Panasonic

Samsung

LG

BYD

AES + Siemens (Fluence)

GE

Bosch

Mitsubishi Hitachi

Toshiba

ABB

Saft

Johnson Contols

EnerSys

SOLARWATT

Schneider Electric

Sonnen

Kyocera

Generac

Kokam

NantEnergy

Eaton

Nissan

Tesvolt

Kreisel

<u>Leclanche</u>

Lockheed Martin

EOS Energy Storage

ESS

UET

electrIQ Power

Belectric

Stem

ENGIE

Redflow

Renault

Primus Power

Simpliphi Power

redT Energy Storage

Murata

Bluestorage

Adara

Blue Planet

Tabuchi Electric

<u>Aggreko</u>

Orison

Moixa

Powin Energy

Nidec

<u>Powervault</u>

<u>Schmid</u>

<u>24M</u>

Ecoult

Innolith

LithiumWerks

Natron Energy

Energy Vault

Ambri

Voltstorage

Thanks and stay healthy,

Much Spragel

Mark Spiegel