October 5, 2018

Dear Partner:

We had another difficult quarter and lost an additional (9.1)%,[1] bringing the Greenlight Capital funds' (the "Partnerships") year-to-date loss to (25.7)%. During the quarter, the S&P 500 index returned 7.7%, bringing its year-to-date return to 10.6%.

On August 31, we sold the last of our Apple (AAPL) stock at $228 per share. Our first purchase was on May 10, 2010 at a split adjusted $36 per share. For a number of years it was the largest position in the Partnerships. Our AAPL investment compounded annually at 26% and earned the Partnerships over $1 billion.

But, it wasn't easy. After Steve Jobs passed away in October 2011, the consensus view was that the company would never innovate again. Then in 2012, Samsung beat AAPL to market with a smartphone with a larger screen and AAPL stock collapsed by 45% in seven months. Very few agreed with us on AAPL, and we had an initial loss on our investment. Our variant perception was that the iPhone was not a commodity piece of hardware that would face ruinous margin degradation, but a mix of hardware, software and services that integrated with other AAPL products and benefitted from AAPL's developer ecosystem and its positive network effects. Rather than a commodity, we thought that AAPL was an affordable luxury product with a durable brand. The market obviously disagreed and shares sold off to about 5x earnings net of the cash.

We were frustrated with AAPL's capital structure and put forth a proposal to unlock value. While the company did not implement our specific idea, our efforts helped AAPL move from a program of hoarding cash to one of aggressively repurchasing stock. Since then, AAPL has repurchased more than one quarter of its shares outstanding at an average price of $111. Today, earnings per share are more than a third higher as a result of the share repurchases. Obviously, we had little to do with AAPL's overall success, and we are grateful to Tim Cook and AAPL's entire workforce for helping us achieve a great investment result.

We ultimately sold because our differentiated thesis from 2011 has become consensus, the valuation at 17x forward earnings is much less enticing, and we are somewhat worried about Chinese retaliation against America's trade policies.

As we recount the AAPL story and think back to the spring of 2013 as our largest position moved sharply against us, it basically feels the same today – but now the market appears to be rejecting our entire strategy of value investing, and the mark-to-market losses have affected nearly our entire portfolio. Just like with AAPL in 2013, few agree with us on most of our positions.

During September we spent two days offsite reviewing the entire portfolio. As a result of that process we made some changes to the portfolio – some of which we are still implementing. But,

[1] Source: Greenlight Capital. Please refer to information contained in the disclosures at the end of the letter.

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the bigger take-away is that we believe we have a deep understanding of the fundamentals of the companies we are invested in and the perceived misunderstandings by the market. Most of our company theses are intact. Considering we are almost a decade into a bull market, our longs are very cheap *on an absolute basis* and our shorts are incredibly expensive.

The current market view is that profitless companies with 20-30% top-line growth are worth 12x-15x revenues, while profitable companies that lack that level of opportunity are worth only 5x-8x after tax earnings. As an arithmetic exercise, if you pay 12x revenues for a company that eventually makes a 10% after tax margin and trades at a 20x P/E, the company has to sustain a 25% growth rate for 8 years for you to break even, and for 12 years for you to make an 8% IRR (requiring 15x revenue growth). If the company is increasing the share count by paying employees in stock, the math gets worse.

Tech bulls respond by asking, “What if the margins turn out to be 30%?” We looked for examples of companies that spent years with profitless topline growth that developed into 30% net margin businesses. It turns out that businesses that matured into very high margin businesses generally demonstrated strong margins at relatively low revenue levels. We think that right now the market is valuing a large group of stocks on nothing more than a hope (sometimes termed “management’s long-term guidance”) of 30% margins *someday*, with an emphasis that no one can be expected to know when *someday* arrives. We think *someday sooner* these stocks will de-rate.

While it hasn’t led to great returns so far, our opinion expressed in 2016 that General Motors (GM) will likely *earn* its market capitalization before Tesla (TSLA) makes its first annual profit seems well on its way to coming true. Speaking of GM and TSLA, during the market discussion about whether TSLA should go private, Catherine Wood of ARK Investment Management, one of TSLA’s most vocal shareholders, explained why TSLA could be worth $4,000 a share or $900 billion and provided an analysis to back it up.

The interesting thing about the analysis is that 84% of the value came from the assumption that TSLA would be operating a platform of three million robo-taxis in 2023. As of today, TSLA hasn’t even announced a plan to enter the robo-taxi business, nor is it possible for the company to develop the manufacturing capability to make 3 million robo-taxis within five years. Setting that aside, GM Cruise has made significant progress towards developing robo-taxis and expects to launch commercial service in 2019. All of GM is worth $48 billion or about 6% of what ARK claims to be the value of TSLA’s robo-taxi opportunity. Recently, Honda invested $750 million into GM Cruise at a headline valuation of $14.6 billion. However, when you peel back the deal, Honda plans to contribute an additional $2 billion over 12 years for non-exclusive technology rights – e.g. the right to be a customer. To the extent Honda’s support could be thought of as equity, Cruise’s implied valuation could reach up to $50 billion. As a result, GM Cruise’s development is in the traditional sense: funding secured!

In thinking through TSLA more, it brings us back to Lehman, which went bankrupt 10 years ago. One of our key insights into Lehman was that the company had faced a credit crunch in 1998, bluffed its way through and got away with it. In fact, rather than facing regulatory, legal or even market consequences for failing to own up to reality in 1998, the company was rewarded when its business turned. This emboldened management to be even more aggressive during the next credit crunch in 2007 and 2008.

Lehman threatened short sellers, refused to raise capital (it even bought back stock), and management publicly suggested it would go private. Months later, shareholders, creditors, employees and the global economy paid a big price when management's reckless behavior led to bankruptcy. The whole thing might have been avoided had the authorities cracked down on Lehman in 1998.

There are many parallels to TSLA. In 2013, TSLA was on the brink of failure as customers who had paid deposits weren't taking delivery of the Model S. TSLA's cash reserves fell to a dangerously low level and CEO Elon Musk secretly and desperately tried to sell the company to Google. Rather than communicating the truth to shareholders, Mr. Musk bluffed his way through the crisis. There were no regulatory, legal or market consequences for failing to own up to reality. The business survived, and Mr. Musk was celebrated for his successful bluffing.

In our opinion, this has emboldened the TSLA CEO to embark on ever more aggressive deceptions. In 2016, Mr. Musk bluffed his way through the TSLA bailout of SolarCity by demonstrating a very exciting but fake product called Solar Roof.[2] The company started taking $1,000 deposits in May 2017 and launched the product in August 2017, but as of May 31, 2018, reports indicate that only 12 Solar Roofs have been fully installed – 11 of which are owned by Tesla employees.[3]

But, like Lehman, we think the deception is about to catch up to TSLA. Elon Musk's erratic behavior suggests that he sees it the same way. In August he told the New York Times, "But from a personal pain standpoint, the worst is yet to come."[4] Given that prediction, we can't understand why anyone would want to own TSLA shares. It really doesn't get much clearer than that.

Here is our take on why we think Elon Musk is so despondent:

In 2016, the Model S had already become an iconic car selling for about $80,000. However, the market for $80,000 cars is small. TSLA announced the Model 3, which looked to be a stripped down version of the Model S, starting at $35,000 before a $7,000 tax credit. If the Model 3 was even 80% as good as a Model S, this was an incredibly exciting offer. Hundreds of thousands of people sent in $1,000 as a refundable deposit to get a spot on line. At the same time, TSLA promised it could make a 25% margin at that price point.

Why did TSLA think it could make the car so cheaply? At the 2016 shareholder meeting Mr. Musk said, "We realized that the true problem, the true difficulty, and where the greatest potential is – is building the machine that makes the machine. In other words, it's building the factory. I'm really thinking of the factory like a product." He thought he could improve car manufacturing by an order of magnitude and claimed that manufacturing would be TSLA's competitive advantage.

[2] The video can be seen here: https://youtu.be/aCU0vG3Gpfs
[3] For a detailed description of this story: https://mansionengineer.com/2018/08/10/elon-musk-tesla-and-the-solar-roof-tile-fraud
[4] https://www.nytimes.com/2018/08/16/business/elon-musk-interview-tesla.html

Fast forward one year, and Forbes wrote about Mr. Musk's vision, "In fact, robots will move so quickly and so efficiently that humans won't be safe on the factory floors. So, just a skeleton staff of engineers will be on hand – and they will merely monitor production."[5] The faster speed would mean much more productivity and much lower manufacturing costs.

In July 2017, TSLA turned on the machine that was to build the machine… and it didn't work. Instead of producing TSLA's forecast of 5,000 Model 3s a week in the month of December, TSLA produced only 2,425 for the entire quarter. Elon Musk realized that full automation is impractical. Humans replaced some robots. Adding humans into the production process means that TSLA can't improve the factory speed to achieve its vision of improving manufacturing by an order of magnitude. As Musk said in 2016, "You really can't have people in the production line itself, otherwise you'll automatically drop to people speed."[6]

In 2016, TSLA thought its Fremont plant could make 5,000, 10,000 and 20,000 vehicles a week in late 2017, 2018 and 2020, respectively. This can't happen at people speed. Consequently, the cost structure of the Model 3 is much higher than Elon Musk expected when he took deposits from hundreds of thousands of people for a $35,000 car. It's a promise he can't keep.

UBS did a teardown analysis and estimated that the cost to make a stripped down version of the Model 3 is $41,000. That's a long way from $35,000, let alone $26,250 – the level needed for TSLA to make a 25% margin.

In May, Elon Musk tweeted that the $35,000 version would be launched 3-6 months after the company achieved 5,000 cars a week. That milestone was hit with great fanfare in June. However, investor relations has leaked that the company now expects the $35,000 version in the second quarter of next year.[7] Tellingly, TSLA has stopped taking orders for the $35,000 version, as it may already know that it won't be releasing a $35,000 version anytime soon or ever. The company has changed its policy on refunding deposits so that customers who are tired of hoping TSLA makes a car that doesn't exist and want their money back have to wait 45 days. It reminds us of Jane and Michael Banks in Mary Poppins: https://www.youtube.com/watch?v=xE5klz0yUT0.

We think this may explain Mr. Musk's erratic behavior.[8] He can't make the car without losing too much money and he can't bring himself to cancel the program and refund everyone's deposits. His conduct suggests that he is doing his best to be relieved of his position as CEO to avoid accountability. Quitting isn't an option[9] because it prevents Mr. Musk from claiming he could have fixed the problem had he stayed.

5 https://www.forbes.com/sites/jonmarkman/2017/06/17/how-to-make-500k-cars-without-humans
6 https://www.washingtonpost.com/news/the-switch/wp/2016/08/04/the-future-of-car-production-will-be-devoid-of-people-according-to-tesla/
7 https://www.wormcapital.com/insights/tesla-gigafactory-visit. Not that we expect the SEC to care, but this post is rife with apparent Regulation FD violations.
8 We listed some of those actions last quarter; this quarter the erratic behavior intensified further.
9 Threatening to quit in order to get your way does not count.

But, it’s a Mexican stand-off: the Board is too close to him to fire him and also doesn’t want to be blamed.[10] The same can be said for the SEC, which backed off on its threat to bar him as an officer.

Thus far, TSLA has produced several more expensive variants of the Model 3 with an average price of about $60,000. The addressable market at that price point is no more than one third of the addressable market at $35,000. A fraction of the customers who placed deposits for the Model 3 have been willing and able to buy one of the premium versions. To date, TSLA has made about 95,000 Model 3s, and given that some versions are now available for immediate sale to people who weren’t on the wait list and that TSLA is offering promotional discounts like free supercharging, it seems clear that the backlog for premium versions is nearly exhausted.[11]

TSLA is expected to make and deliver more than 65,000 Model 3s in the December quarter. It might be able to *make* them, but without an order backlog there is very little chance that there is enough demand to *sell* them. We expect a large revenue and earnings disappointment in Q4. The exposed demand shortfall should ruin a key pillar of the bull case. Next year, TSLA loses the government Zero Emission Vehicle subsidy, which will make it even harder to attract demand. The September results are likely to be as good as it gets for TSLA.

Meanwhile, the brand is in trouble. The blocking and tackling of the Model 3 rollout is leaving customers unhappy. There have been lots of reports of delivery snafus and poor quality cars. There are anecdotes about TSLA accepting full payment for cars and then not delivering them. There are many stories of cars (even Model S and Model X) in service shops for months for lack of spare parts. With so many new TSLA cars on the road, the problem is overwhelming TSLA’s limited service infrastructure. The Model 3 is the least reliable car on the market.[12]

If you add in the pending disappointment of customers who paid deposits and may find themselves as involuntary unsecured creditors, TSLA appears on the verge of losing all but its most dedicated fans.

This section of the letter has run more than a bit long, which doesn’t leave space to address the infamous “funding secured” market manipulation tweet and a number of apparent accounting red flags at TSLA. But, we would be remiss to fail to note that in August TSLA hired a well-respected finance executive to be its new Chief Accounting Officer. He was to receive $10 million worth of stock over four years. Suffice it to say, that is not the going rate for accountants. He lasted a month and quit before ever being associated with a reported financial statement. TSLA may be in accounting hell.

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[10] Elon Musk is often compared to Steve Jobs. We note, the Apple Board removed Mr. Jobs, which enabled him to have time to mature. The Tesla Board does not appear likely to follow that example. We think the better comparison for Elon Musk is Eike Batista, who was Brazil’s leading industrialist and went from a net worth of $35 billion to a negative net worth, when his over-levered unprofitable empire collapsed. Mr. Musk’s empire may be fully leveraged to Tesla stock, which he cannot sell and we expect will likely collapse.

[11] Tesla has claimed that each car is custom built for a particular customer. That Tesla has built a large inventory of cars without specific customers, puts that narrative into doubt. https://electrek.co/2018/09/21/tesla-model-3-free-supercharging-inventory-cars-end-quarter-delivery-rush/

[12] https://www.truedelta.com/reliability-by-generation

Our TSLA short was our second biggest winner during the quarter. The biggest was Brighthouse Financial (BHF), which announced a satisfactory quarter, but more importantly announced a $200 million buyback, thereby commencing capital return a full 2 years sooner than projected at the spin-off road show.

There were many losing positions during the quarter. The material ones were:

- Bayer (Germany: BAYN) fell victim to a "runaway jury" as a California jury awarded $289 million to a plaintiff who claimed glyphosate based weed killers caused him to get cancer. The market re-rated the shares to anticipate payments to many other victims. The scientific evidence indicates it is unlikely glyphosate causes cancer. We expect the California verdict will be reversed or the damages greatly reduced, and the company will fare much better as the litigation develops.
- CNX Resources (CNX) fell due to general weakness in natural gas stocks and one-off inefficiencies in its drilling program.
- GM fell as the company modestly reduced 2018 estimates due to higher steel costs and foreign currency issues in Latin America. It also reported relatively weak monthly sales in August and September.
- An undisclosed but profitless healthcare short reported a positive revenue surprise and the shares gapped considerably higher. We note that the extra revenue came at very low margins, suggesting the possibility that the company dumped excess inventory into the market relating to a product transition. Since the market isn't evaluating the company based on profits, it didn't seem to care about the low margins.
- Another undisclosed marginally profitable technology short caused a large loss based on a new highly-promoted "bull case" that features an insight that even if it isn't going to materialize, nobody will know for at least a year.

We added two medium sized long positions this quarter: Altice USA and BT Group.

The Partnerships made a new investment in Altice USA (ATUS) at an average price of $18.38. ATUS trades at an EBITDA multiple discount to pure-play cable peers Charter Communications and Cable One despite better free cash flow conversion and better new investment opportunities. ATUS is rebuilding a majority of its network with fiber in the coming years, with an anticipated 40-50% return on its investment. The shares trade at a 10% cash flow yield, in part because of market concerns over cord-cutting. But when a customer drops linear video and instead streams video through their broadband connection, data consumption rises very dramatically, which is positive for ATUS. ATUS shares ended the quarter at $18.14.

The Partnerships purchased a medium-sized position in BT Group (London: BT/A) at an average price of £2.19. Following years of trouble including regulatory concerns, an accounting fraud in Italy, and the potential impact of Brexit, the shares were cheap at 4.7x EV/EBITDA, and offered an 8% dividend yield on our 2019 estimates. BT owns 100% of Openreach, which operates the largest last mile fixed-line network in the U.K. Investors are concerned about the capex required to build out a fiber network in the U.K. even though the returns appear to be adequate. It is possible that new management will unlock value by splitting Openreach from the telecom service provider. BT shares ended the quarter at £2.25.

We exited several positions during the quarter:

We covered an 11-year-old short in Martin Marietta Materials with a medium loss and a negative mid-single digit IRR. Earnings collapsed after the housing bubble popped, and the company proceeded to regularly over-promise and under-deliver during the recovery. The long hoped for federal infrastructure spending panacea never happened. However, regulators have been permissive towards anti-competitive (albeit pricey) acquisitions, which has aided the company's pricing power in several important geographies. The stock pulled back on concerns about the near-term disruption from Hurricane Florence, and we decided it was time to move on.

On our second go round, we exited our long position in Micron with a 66% gain over a year and a half when we sensed DRAM prices were topping. Lesson learned: this time we didn't hold through the ensuing decline.

We exited our multi-year long position in Mylan (MYL) during the quarter with a small loss. Our thesis was that once the EpiPen news cycle ended, MYL's robust biosimilar drug pipeline would drive higher earnings and capital returns. MYL succeeded in winning FDA approval for many of these large products, but it struggled to displace incumbents even at lower price points, and the U.S. generics industry declined much more severely than we anticipated.

We exited our short position in TransDigm Group (TDG) with a medium loss. A supplier of aircraft parts, TDG thrives by raising prices on sole-source components. We thought the U.S. military was getting wise to TDG's price gouging, and frustrated customers would fight TDG as well. To date, that thesis has not materialized.

As we discussed in our original investment thesis, Twitter's advertising take rates improved, and the shares climbed steadily over the past year. We exited with a 78% gain over eight months as we became worried about regulatory risks affecting all social media companies.

We had two investment analyst departures and two investment analyst additions during the quarter. After 16 excellent years, James Lin has decided to leave Greenlight and take time to consider his next evolution. Andy Kaplan will be relocating his family to Maine. We wish them both continued happiness.

Ethan Auerbach joined us as a research analyst. He previously worked as a distressed credit portfolio manager at BlueMountain Capital Management and as an investment analyst at Marathon Asset Management where he focused on stressed and distressed credit across a variety of industries. He began his career at UBS and Goldman Sachs after graduating from Cornell University in 2002. Welcome Ethan!

Toby Haselberger joined us as a research analyst from AidennLair Capital, a hedge fund he helped found in 2016. Prior to that, Toby was a partner at Freshford Capital and an investment analyst at Trian Partners focused on special situations, deep value, and activist-style investing. Toby began his career at Deutsche Bank and Evercore Partners after graduating from the University of Pennsylvania in 2005. Welcome Toby!

Aric and Shelly welcomed their son, Asher Blake Steffen, on August 14. Asher means “happy” or “blessed”. We wish much happiness and blessings to Aric and Shelly!

Our new website will launch on October 8. It should be easier for our partners to use and our domain will remain the same, www.greenlightcapital.com. All of our partners will be receiving a separate email from us in the coming days with login information. Please check it out!

At quarter-end, the largest disclosed long positions in the Partnerships were AerCap, Brighthouse Financial, General Motors, Green Brick Partners and gold. The Partnerships had an average exposure of 106% long and 74% short.

“If you are going through hell, keep going.”

–Winston Churchill

Best Regards,

Greenlight Capital

Greenlight Capital, Inc.

Unless otherwise noted, performance returns reflect the dollar-weighted average total returns, net of fees and expenses, for an IPO eligible partner for Greenlight Capital, L.P., Greenlight Capital Qualified, L.P., Greenlight Capital Offshore, Ltd., Greenlight Capital Offshore Qualified, Ltd., and the dollar interest returns of Greenlight Capital (Gold), L.P. and Greenlight Capital Offshore (Gold), Ltd. (collectively, the "Partnerships"). Each Partnership's returns are net of the modified high-water mark incentive allocation of 10%.

Performance returns are estimated pending the year-end audit. Past performance is not indicative of future results. Actual returns may differ from the returns presented. Each partner will receive individual statements showing returns from the Partnerships' administrator. Reference to an index does not imply that the funds will achieve returns, volatility or other results similar to the index. The total returns for the index do not reflect the deduction of any fees or expenses which would reduce returns.

All exposure information is calculated on a delta adjusted basis and excludes credit default swaps, interest rate swaps, sovereign debt, currencies, commodities, volatility indexes and baskets, and derivatives on any of these instruments. Weightings, exposure, attribution and performance contribution information reflects estimates of the weighted average of such figures for investments by Greenlight Capital, L.P., Greenlight Capital Qualified, L.P., Greenlight Capital Offshore, Ltd., Greenlight Capital Offshore Qualified, Ltd., Greenlight Capital (Gold), L.P., and Greenlight Capital Offshore (Gold), Ltd. (excluding the gold backing held by the gold interests) and are the result of classifications and assumptions made in the sole judgment of Greenlight.

Positions reflected in this letter do not represent all the positions held, purchased, or sold, and in the aggregate, the information may represent a small percentage of activity. The information presented is intended to provide insight into the noteworthy events, in the sole opinion of Greenlight, affecting the Partnerships.