Tesla Investment Thesis

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***Abstract*—Founded in 2003, Tesla is paving the way for the electrification of the automotive industry. This paper will dive into the fundamentals of Tesla and its future trajectory. From a first principles analysis, we will dissect how Tesla came to be and what the future will look like from an investor's perspective. The significance of this paper lies in the investment rhetoric and what investors should know about before investing in this company. This paper is a call to action to analyze the company in your own time, create your own thesis, and cross-reference it with this paper. If ideologies align, Tesla might be a fit for you. Investing in Tesla is an open-ended question for most and the purpose of this paper is to clarify why it's a great choice to invest in $TSLA.**

I. Introduction

As of this writing and the foreseeable future, Tesla is by far one of the largest EV companies in the world. Currently, legacy automakers are pulling away from their EV business and focusing on hybrid models in the meantime due to a 5.00-5.25% FED's fund rate. Everybody is losing money on EVs, yet Tesla is profitable; albeit, declining margins due to price cuts (short term). Given the struggles of competitors to create a profitable electric vehicle with high margins, it's clear that Tesla isn't just in a league of its own, but rather in a league unto itself.

I should clarify that I have allocated 100% of my portfolio into Tesla since April 26, 2022. That was the day I had full conviction that Tesla was the only company who had massive upside potential versus FAANG companies. My investment into Tesla dates back to June 2020, which took up about 50% of my portfolio at the time. Although conventional thinking depicts diversity as the only way to maintain a healthy growing portfolio, I have a massive appetite for risk and Tesla is the only company that I have and will research for years to come. My conviction is that strong.

The meaning behind writing such a paper is to clearly lay out the positives of Tesla to anyone who might be curious about the company. I can only provide the path to sunlight and not bring the sunlight to you, so by default this paper is meant to aid those seeking the aid in the first place. This paper will go ahead and discuss how Tesla came to be, its core products and services, financial performance, market analysis, and investment rationale.

II. Company Overview

Let's first point out that Elon Musk has had multiple master plans that outline the future of Tesla. The first master plan outlined the path to building cheaper EVs, building out a solar based grid, and being bold in disrupting the status quo. Once the original Tesla Roadster hit the markets, Tesla was on the right track to build a cheaper vehicle: the Model S. Furthermore, Tesla focused on solar panels and battery storage as a means to reduce the load on the electrical grid. Finally, Musk believed it was essential to disrupt the status quo, and encouraged employees to push boundaries and innovate the automotive and energy sectors.

Master Plan, Part Deux, proposed an expansion into solar through the SolarCity acquisition, new vehicles in the lineup, the development of autonomous driving, creating a ride-share network, and enhanced energy storage. These objectives built up Tesla to what we know today with products still in development. The Model X, Model 3, Model Y, Cybertruck, and Semi have been introduced into the lineup as of this writing, with the Cybertruck being in its ramping stages.

Master Plan Part 3 takes a whole new approach and tries to pave the way to a 100% global clean energy transition. "This requires 30TW of renewable energy & 240 TWh of energy storage; including 112 TWh for electric transportation (EVs) and the balance for stationary energy storage. Lithium-ion batteries are key" (*Tesla Master Plan Part 3 Breakdown and Investment Opportunities*). Products like residential, business, and industry heat pumps, power existing grid with renewables, switching to EVs, electrifying high temperature heat delivery and hydrogen production, sustainable fuel planes and boats, and manufacturing the sustainable energy economy all are a way to achieve a 100% sustainable future.

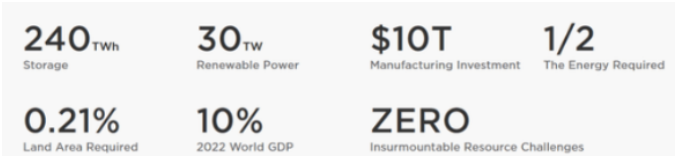

Fig. 1. **Estimated Resources & Investments Required for Master Plan 3 [1]**

Tesla's advantage stems from these "unrealistic" goals, and when they achieve these milestones it sets the competition back years, if not decades. It is through a clear vision and a very strong work ethic that guides Tesla in the right direction. All great companies become great due to great leadership. Elon Musk, who is the face of Tesla, is an excellent leader, and it is through his unique nature that Tesla is where it is today. This is not to discount the other geniuses that also keep the company afloat. With this long term, tunnel vision mindset, Tesla innovates at a much faster pace than any other company in the world. At one point, Tesla was worth $1.2 trillion, but with an environment of a startup. This sense of urgency puts them light years ahead of the somewhat serious competition.

III. Fundamental Analysis

So with all this talk about being ahead of the competition, let's dive into how they're doing this. Let's first start with

the vehicle business. Tesla takes first place in manufacturing profitable electric vehicles with the highest margin. Although there are cheaper models from competitors, Tesla still has the margin advantage. Furthermore, it has the Supercharging infrastructure, which allows for anyone with a Tesla to cover a cross-country trip without any issues, assuming they take the recommended navigating routes.

Second, let's get into the energy business. As of 2024, its energy business has been growing exponentially and has grown 300% in the last few years. Some speculate it may overtake the car business in terms of revenue. So what makes it so special? Well, companies would often buy Megapacks to sustain their business through batteries in case of any power outages. The same goes for homeowners who want to offset their electric bill, and in some cases, provide electricity back to the grid in return for cash.

So an average person can drive an electric vehicle that is fueled through solar energy and can road trip with an ample amount of chargers on roads. Here, Tesla begins to disrupt many companies to each take a part in this cycle. It is due to vertical integration, most notably used by Andrew Carnegie, that Tesla begins to consolidate all these technologies under one company. No one even comes close to competing with Tesla on this front.

Moving on, let's cover some future products. First, the robotaxi, a driverless vehicle that can take a customer anywhere they want. Through an update over the air, all eligible Tesla vehicles will have the power to drive autonomously and even generate revenue. Tesla is seeking to disrupt the taxi industry, by providing their very own ride-hailing service. During Tesla's Autonomy Day in 2019, Elon gave a few rough numbers on the current cost of ride-hailing programs compared to what Tesla can offer. At the time, an average Uber/Lyft ride would cost a customer $2-3 per mile; meanwhile, the driverless taxi will cost 18 cents per mile, and this number will improve as time goes on.

Further emphasis is needed to clarify why this is a very lucrative business to get into. As of today, Tesla depends on its car business to generate the company's revenue, but with the development of Full Self-Driving (FSD) and the robotaxi program, Tesla is getting ready to turn into a software revenue-dependent company. Software is where it's at when it comes to high margins. This transition will take time, but definitely achievable within the 2020s when FSD is solved and at Level 4 or Level 5 autonomy.

The economies of scale are massive when it comes to robotaxis. Imagine a world where you can order an Uber at any time of day without needing to worry about the number of drivers on the road to fulfill your request, then take into consideration the car's utilization during a given week. A self-driving/self-charging car would practically have an uptime of at least 50 hours a week. Tesla will not only operate their own fleet of robotaxis, but allow the public to sign their cars up to generate an income for them, completely asynchronous from their daily lives. No one, not even BYD, is operating at this level of vertical integration. It will only be a matter of time where Tesla has its ChatGPT moment. Meaning, once the self-driving technology is accessible to more people, Tesla will become a household name when it comes to ride-hailing services for cheap. Think trillions of dollars in revenue. Not a small feat at all.

Assuming the robotaxi and the next generation $25k vehicle are built on the same platform, Tesla will be at another advantage due to the lower manufacturing costs of both vehicles concurrently. The $25k vehicle, also known as the "Model 2," will allow Tesla to provide a mass affordable vehicle to a whole new segment of the market; in effect, achieving what Master Plan 1 and 2 outlined. Mass volume doesn't even come close to what Tesla is trying to achieve with the "Model 2." Tesla plans to produce the vehicle using a new approach called the "unboxed process" where the parts of the car are already assembled and put together within the skeletal frame of the vehicle. Keep in mind, instead of Tesla welding ̃130 parts together for the skeleton of the vehicle, they use a die-cast Giga Press that stamps only two pieces of the skeleton to be welded together. One of the pieces being the front of the vehicle and the other being the rear. Noteworthy to mention, the Giga Press is about 430 tons and was built specifically for Tesla. Overall, Tesla has the manufacturing advantage for a new and affordable mass market vehicle that will also act as a robotaxi.

Let's touch up on the software that will run the robotaxi: FSD. As of this writing, there are 6 million Tesla vehicles out in the wild collecting data at an ever growing speed. In December 2022, Tesla started working on their first end-to-end neural network approach to full self-driving. Essentially, this means the cameras on the vehicle will take in video and the computer will output control of the vehicle; no hard-code necessary. This is a novel approach to self-driving technologies, as others use simulations and hard-code to navigate the world autonomously. Tesla has the best approach because fundamentally neural nets (NNs) are all probabilistic. In a world full of probabilities, it's best to choose the probabilistic approach.

In addition to the novel approach, Tesla is exponentially increasing their AI hardware, and expect to receive 85,000 additional H100 Nvidia GPUs by the end of 2024. They are no longer compute-constraint, which was the biggest concern when it comes to training these NNs. At this point in time, Tesla has achieved 1.25 billion miles on FSD and this number is exponentially growing. It's best believe that around 5-10 billion miles driven on FSD is where Tesla would present the data to regulators to approve robotaxis at mass.

One final piece to this outrageous puzzle is Optimus. Imagine a world where you can buy a robot to do boring and repetitive jobs without the need for an annual salary. Well, that's exactly what the Optimus robot is trying to bring to market. A robot as cheap as an affordable car doing chores and outdated tasks provides economies of scale that have never been thought before. It's comparable to creating a new human who can learn to do a task like anyone else except it does not require as much maintenance or costs as a human would. An

artificial human who can abide by rules and do certain jobs only adds to the workforce which directly adds to GDP. Tesla aims to utilize the FSD technology and integrate it within the robot. Solving FSD would solve artificial general intelligence, which is key in creating an artificial human. It is hard to put numbers on such an idea as it basically means a country's output could multiply if these robots are scattered everywhere. No salary workers reduce costs and maximize profits. GDP as we know it will multiple at an exponential rate.

Bringing all these efficiencies to market is a difficult task, and some of which would take another decade to fully materialize; however, it will get done. Although Elon provides dates that are much closer than an actual product launch, he makes sure he and his team get it done. Tesla achieves impossible tasks, just at a later deadline. The internet is a technology that showed us how different our world can operate if it were interconnected. Well, these technologies that Tesla will deliver to market will only increase productivity, and as a result, add value at an exponential rate to the world's GDP.

IV. Investment Thesis

Before getting into my thesis, I want to advise you that this is not financial advice and all risk you take will be at your responsibility. My investment rationale is simple: buy and hold. I have accumulated 185 shares as of this writing and plan to increase my stake by about 48% in the next 3 months. For reference, Tesla is currently trading at $175. In dire times, I will use options for leverage and hedging purposes only; otherwise, I will stay away from regular option trading. Under no circumstance will I sell, unless it is a dire circumstance.

Tesla has had periods of consolidation lasting years, following with a huge move up. Price typically doesn't matter in these periods, but it's difficult to predict how long these periods will last and what the support and resistance levels will be. Therefore, I will allocate massive capital in times of severe drawdowns, most recently being the 70% drop in 2022. Any time the relative strength index (RSI) of Tesla dips below 30, especially around the mid 20s, in weekly intervals I will allocate capital. If I am illiquid to buy at mass, then I will only then use call options to gain leverage, which have only happened 3 times in Tesla's history.

It goes without saying how risky this investment rationale is, but Tesla's mission is far from being science fiction. With great leadership and great products, it is a matter of time for the market to price in these life-altering technologies. I have gone through periods of severe stress and experiencing a 70% drawdown only compounds the pain. I have been humbled and agree what I'm doing is insane. Once you price in the long-term vision, you will cease to stress over severe drops like this because it should be an entry point to accumulate more shares. Some have even sold their houses to buy more shares; albeit, they were well off to begin with. Be excited about the future that Tesla is trying to create, as it will be evident by the end of the decade that investing today would be the best financial decision.

V. The Future

In due time when these new technologies hit the market, we will truly know what it feels like to live in the future. Humanoid robots in every household, autonomous vehicles as taxis, etc. have always been a dream, but today we see evidence that these dreams are possible. Although we have a small glimpse into the future, due to Master Plan Part 3, it should be obvious that sustainable energy will be the future. These long term projects will take a couple of decades to truly be aggregated, but there will be a ton of ups and downs along the way. The best thing to do today as an investor is to invest passively and sit back and relax. Take in what Tesla is offering, be one with the technology, and I guarantee you that your conviction will only be higher.

VI. Conclusion

In summation, it becomes imperative for one to invest in a company with the most potential in the next few decades. If you are young, time is on your side, which is better than timing the market. Investing today will only help with compounding your initial investment. Developing artificial general intelligence in humanoid robots and autonomous vehicles, producing sustainable energy products, vertically integrating production, extreme cost-cutting, and an investment community that disseminates information at lightning speed is what you get in investing in Tesla. Lately, it has become obvious to me that not investing in Tesla would be the worst financial decision in my life. Let my investment thesis convince you how high my conviction is for the company. Take calculated risks often, and open your eyes when an opportunity is in the room with you. Life is boring, be extreme.

References

1 "Tesla master plan part 3 breakdown and investment opportunities," 2023, accessed: 02 May, 2024. [Online]. Available: https://seekingalpha.com/article/4606051-tesla-master-plan-part-3-breakdown-and-investment-opportunities