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Tesla: Testing a Business Model at Its (R)evolutionary Best[[1]](#endnote-1)

Sayan Chatterjee and Dennis Terez wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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Tesla Motors, Inc. (Tesla), the electric car company, unveiled its Model 3 in late July 2017 as its stock price continued to appreciate. The Model 3 was priced to sell to the mass market and to potentially compete with the mass-market leaders such as Toyota. The stock market had also responded favourably to Tesla’s decision in 2016 to acquire SolarCity, a manufacturer of solar cells, and its decision to build the Gigafactory, the world’s largest lithium battery plant. Could Tesla justify its sky-high stock price multiple by simply selling electric cars, or was the market expecting Tesla to become a battery company that could fundamentally change the energy storage industry—or for that matter, some other type of company?

A BRIEF HISTORY OF TESLA motors inc. (tesla)

Tesla (NASDAQ: TSLA), was started on July 1, 2003, by two Silicon Valley-based entrepreneurs, Martin Eberhard and Marc Tarpenning, whose initial goal was to develop a fully electric sports car. Elon Musk was one of its most celebrated early investors and eventually became the chief executive officer (CEO) and driving force behind the new company. Tesla released the fully electric Roadster in 2008 with a base manufacturer’s suggested retail price of US$109,000[[2]](#endnote-2) and sold it online. Tesla then announced that in late 2011 it would start manufacturing the Model S, a more affordable sports sedan with a starting price of $59,350. More than 500 people placed orders for the Model S in the first week it was available. Over the next several years, Tesla aligned its capabilities to accommodate larger Model S order quantities. This alignment included the purchase of a former automobile manufacturing location, procurement of a low-interest loan from the U.S. Department of Energy, an initial public offering, and an electric vehicle development co-operation agreement with Toyota.

Tesla delivered the first Model S in June 2012. The car earned the highest U.S. National Highway Traffic Safety Administration rating and was also widely applauded in Europe.[[3]](#endnote-3) At the same time, Tesla discontinued the Roadster so it could focus its efforts on Model S production.[[4]](#endnote-4) In February 2012, Tesla announced its next model: a small sport-utility vehicle called the Model X, which had an ambitious delivery date of August 2016. In April 2016, Tesla started taking orders for a lower-priced vehicle intended for mass-market distribution, the Model 3. Musk unveiled the Model 3 to great fanfare on July 28, 2017, with the initial delivery to 30 Tesla employees.[[5]](#endnote-5)

The company was becoming a disruptive force in the automotive industry, and Musk was quickly becoming synonymous with big-picture ideas. Tesla was not the only business idea on this big thinker’s mind. In a TED talk in March 2013, Musk laid out his modest plans for a mass-marketed electric car, a solar energy leasing company, and a fully reusable rocket.[[6]](#endnote-6) But that was not all. In May 2017, as Tesla was preparing to unveil the Model 3, Musk started drawing attention to another of his new ventures, The Boring Company. Anything but boring, this company envisioned the creation of tunnels that would allow high-speed traffic to avoid urban congestion.[[7]](#endnote-7) These ideas all came *after* he had founded PayPal, and then sold it for a considerable fortune. In his TED talk, Musk dramatized how his newly founded company, SpaceX, would create a reusable rocket. That idea became a reality three years later. Four years later, it had become almost commonplace—if it is even possible to use the word *commonplace* when describing Musk’s ideas and inventions.

THE OPPORTUNITY AND CHALLENGES DRIVING TESLA’S BUSINESS MODEL

Tesla’s disruptive business model had been seen before many times in other industries. Typically, a key resource—and usually the most expensive resource of the incumbent business model—was replaced by a new technology that over time became cost-competitive with the resources that were key to incumbents. This scenario had happened to the steam engine (disrupted by the gasoline engine), VHS videocassettes (disrupted by DVDs), computer hard drives (disrupted by flash memory), and, starting in 2003, the gasoline engine was under threat from the lithium battery power train. However, history had also recorded notable failures, including Apple’s attempt at putting a computer in your pocket—the Newton in the early 1990s. In his seminal work, *The Innovator’s Dilemma*,[[8]](#endnote-8) Clayton Christensen identified a simple formula for achieving success through disruptive innovation. Because new technology was initially prohibitively expensive, to be initially profitable, the disruptive business model needed to target a niche segment that was willing to pay for it. If and when the cost of the technology descended the cost curve, it could lead to wider adoption and ultimately disruption of the existing business model. However, the key phrase was “initially profitable.” Many potential disruptors had burned through cash in their early days—and failed.

Tesla positioned the Roadster as a high-performance sports car, capable of 0–60 miles per hour (0–96 kilometres) in three seconds. This market segment was dominated by Porsche at the low end and by Ferrari and Lamborghini at the high end. Given the cost of the lithium battery in 2003 and the 248 horsepower (hp; 182 kilowatts [kW])[[9]](#endnote-9) needed to drive a sports car, it was clear that the Roadster would be expensive to produce. The good news was that the cost of the lithium battery had dropped 80 per cent in six years to $227 per kilowatt hour (kWh). Despite this decrease, an electric car remained prohibitively more expensive than the gasoline car, leading the incumbent auto manufacturers to make only token investments in the lithium battery power train. It was estimated that the lithium battery cost needed to fall to $100/kWh to be comparable with the cost of gasoline engines.[[10]](#endnote-10) The few all-electric cars targeted at the low end were still priced around $40,000 (e.g., the Nissan Leaf). Further, the incumbent automotive firms were waiting for the battery companies to lower the cost of making the battery. Therefore, the opportunity for first-mover Tesla was to own the market for the electric car and internalize the battery value chain to control the cost reduction. Like all disruptive innovators before it, however, Tesla’s challenge was how not to run out of cash. Stated differently, Tesla’s first challenge was to convince its target market that its product was worth paying for.

Customers

The rap against the high-end sports car was that it consumed a lot of fuel. Tesla exploited this point by targeting wealthy customers who were not only performance enthusiasts but also environmentally conscious. They wanted a car with a striking design that performed like a race car but incurred a minimal carbon footprint. Tesla similarly focused on customers who liked the latest in technology and sought out exclusivity and status symbols to increase their social capital. The Roadster’s design was sleek but not too flashy (compared with a Lamborghini) with advanced gadgets such as piezoelectric door handles that opened out as the owner approached the car. Performance enthusiasts wanted a vehicle that could stand up to other muscle cars. Tesla obliged. Its battery-operated powertrains featured horsepower ranging from 302 to 416 (225–310 kW), 0 to 60 miles (0–96 kilometres) per hour in 2.5 seconds, and road-holding that was equal to that of the best sports cars.

While this narrow segment would not lead to many sales, if successful, the companies that manufactured traditional performance cars could not directly attack this segment. More importantly, if Tesla could sell to these customers, it would be profitable from the beginning. Tesla would then be in a much better position to expand or modify its product portfolio and to attract additional funding—the mother’s milk of start-ups (i.e., an essential factor to nurture and support their growth).

Tesla focused on a few other visible attributes that underlined the core reason why some customers would choose a Tesla. These customers wanted to feel that their purchase was helping reduce our society’s reliance on fossil fuels. They wanted to be part of a larger environmental movement. As a result, they were much more aware of the nuanced environmental benefits and disadvantages of owning an electric vehicle. While these customers cared about performance and luxury, they were also willing to make some sacrifice if it meant that their vehicle choice incurred a lower environmental impact.[[11]](#endnote-11)

To satisfy these customers, Tesla empowered drivers to monitor their own energy consumption by designing a high-efficiency driving mode that allowed customers to maximize energy usage. Possibly even bigger was Tesla’s creation of a solar-powered recharging network. While battery-powered vehicles had much lower carbon dioxide (CO2) emissions, batteries recharged by electricity generated from coal actually led to higher CO2 emissions than their gasoline counterparts.[[12]](#endnote-12) The solar-powered recharging stations addressed this concern. These stations were designed to generate excess capacity that would be sold back to the electricity grid, which in turn generated the necessary funds for Tesla to offer its recharging services to its customers for free. It also allowed the company to market that it was helping reduce the nation’s reliance on fossil fuel-powered electricity.[[13]](#endnote-13) To make these product attributes visible to its customers, Tesla designed its website to enable customers to track electricity transfer and to see how it directly benefited the environment.[[14]](#endnote-14)

Beyond the above attributes, in 2014 Tesla increased the warranty for the Model S to eight years. Electric powertrains had fewer moving parts than their gasoline-powered counterparts and produced no residue or by-products that could choke the engine. Therefore, an electric car should last much longer. The warranty on the battery was eight years, so it made sense to extend the car’s warranty for that same period. As a further sign of product confidence, Tesla applied this warranty retroactively to all previously sold Model S cars. It also gave Tesla owners additional assurance that their cars would hold their value by offering a three-year buyback guarantee.

Tesla’s customer care did not end with the purchase. Once a customer took delivery of the car, Tesla offered a “white glove” service (i.e., a premium service that included special attention to detail). For example, when customers took their car in for service, the company provided a valet. If a customer was stranded and needed mechanical help, Tesla service technicians known as “rangers” performed “house calls,” even aiding a Tesla driver stranded on a deserted highway.

While Tesla successfully navigated the first hurdle of a disruptive business model—being profitable at a small scale in its initial rollout—it faced significant challenges in other parts of the value chain, especially if it intended to expand to the mass market. These additional challenges are detailed below.

Distribution Channels

Tesla had been a vocal critic of the traditional dealer-based distribution model, claiming the model was outdated and costly for consumers. The latter claim was supported by a Goldman Sachs report that estimated a direct-to-consumer distribution model would save customers approximately $2,225 on a $26,000 car or approximately 8.6 per cent.[[15]](#endnote-15) The criticism was justified. According to the National Automobile Dealers Association, in 2012, the United States had 17,635 franchised dealerships. Total dealership revenue in 2012 reached $676 billion, up 9.8 per cent over 2011; however, total gross margins fell in 2012 due to increased costs and expenses in such areas as advertising, rent, and payroll.[[16]](#endnote-16) The dealer-based distribution system that allocated sales territories rested on the theory that a protected market compensated dealers for the risk of investing in buildings and large inventories. State laws generally prohibited anyone but a licensed franchisee from selling new cars.[[17]](#endnote-17)

Tesla’s business model entirely sidestepped the structural entry barrier of dealerships. U.S. customers could view the cars at Tesla showrooms, as they would a Ford or a Chevy. Customers could then purchase a Tesla online after customizing it to their liking. Because of production delays, all Tesla customers were put on a waiting list.

First in Los Angeles and later, in Menlo Park, California, in 2008, Tesla opened display showrooms (often in downtown areas where access to likely customers was significant), and expanded to other cities, including Seattle; Washington, D.C.; New York City; Chicago; and Denver.[[18]](#endnote-18) In states that prohibited direct manufacturer-to-consumer car sales, consumers needed to order their Tesla vehicle online, have it shipped via a third-party transport company, complete the vehicle registration process in another state, and then contact customer service in California for warranty service maintenance. In the end, Tesla’s business model effectuated a two-prong consumer distribution channel strategy: (1) online purchasing and (2) direct sales at company-owned and -operated retail stores where little inventory was needed, thereby creating a unified direct-to-consumer strategy.[[19]](#endnote-19)

Manufacturing and Assembly

Tesla manufactured all its cars at one factory in Fremont, California, which allowed it to benefit from scale economies even despite the small volume of cars it produced. Having one centralized location was key, but Tesla became notorious for production delays from the Model X[[20]](#endnote-20) to the Model 3.[[21]](#endnote-21) Earlier, customers and investors had been willing to overlook delays. Customers who had placed orders for the Model S were usually wealthy and had alternative vehicles. However, a second vehicle might not be the case for Model 3 customers who put down a refundable deposit of $1,000 for a car priced at $35,000 or more, excluding government incentives. If these customers did not receive delivery on time, they could cancel or even resell their place in line—as some have done. If the cancelling of orders were to happen on a large scale, investors might not be as patient. Apart from production delays, complaints surfaced about the fit and finish of the Model S. As before, customers seemed to focus on the driving performance and were willing to overlook some of the fit and finish issues.[[22]](#endnote-22) Once Tesla reached the mass market, however, its car production could have been compared with the superb quality control of vehicles produced by Toyota, BMW, or Mercedes-Benz.

Supplier Arrangements

At the beginning of 2018, automobile manufacturers outsourced most of their components. The big original equipment manufacturers (OEMs) exercised substantial clout over their suppliers because of the scale of their purchase. For this reason, many suppliers built factories close to the OEM assembly plants to streamline the supply chain. Given Tesla’s small output, this strategy was not possible. Further, given Tesla’s unique technology, some of its components suppliers—such as battery makers—had not traditionally supplied automobile manufacturers. To overcome these challenges, Tesla’s business model called for a three-prong supply chain strategy: one for standard parts, one for proprietary parts, and one for the battery-operated powertrain.[[23]](#endnote-23)

Tesla partnered with Daimler and Toyota to source some standard parts[[24]](#endnote-24) in exchange for sharing battery and powertrain technology.[[25]](#endnote-25) Daimler, Toyota, and more recently Panasonic had taken equity stakes in Tesla. Daimler even had a seat on Tesla’s board of directors. In 2014, however, Tesla decided not to renew Daimler’s seat. Coincidentally or not, Daimler liquidated its Tesla stock holding at a $780 million profit.[[26]](#endnote-26) Some industry observers had noted the board seat was no longer needed for insight into Tesla’s innovations, as Tesla had subsequently opened its patents for all other OEMs.[[27]](#endnote-27) Daimler continued to buy battery packs from Tesla for its own B class electric vehicles. These arrangements probably secured the availability of the standard parts for Tesla.

Tesla’s vehicles contained many proprietary components that were sourced directly from the Far East, including the lithium ion battery. This supply chain’s vulnerability was starkly brought to light by the West Coast Longshoremen’s work slowdown in late 2014. The impact of this slowdown should have been mitigated by Tesla’s relatively small output and the fact that, for all sales, customers had to wait to take delivery. Nevertheless, according to Tesla’s supply chain vice-president, Peter Carlsson, Tesla needed to “buffer up” to account for part shortages, and in some cases, used extremely expensive airfreight. This situation adversely affected Tesla’s working capital efficiency, which would likely be unacceptable as Tesla expanded into the mass market with lower profit margins.

Tesla had started to address these issues proactively with a strategy designed to align its own interests with those of its proprietary parts suppliers. For example, for all components other than the powertrain, Tesla had developed a highly innovative model for integrating its suppliers into its production schedule. Since Tesla manufactured all its cars in one factory in Fremont, California, suppliers could not set up shop nearby. Instead, Tesla enabled its suppliers to more efficiently use certain shared services. This innovation was made possible digitally through a secure website and “manufacturing hotels,” where suppliers could meet face-to-face to discuss how to leverage shared services.[[28]](#endnote-28)

Tesla’s Gigafactory for Batteries

Tesla’s major sourcing challenge was the battery. Tesla was sourcing this critical component from the Far East, which left itself open to supply and quality problems. Moreover, it had no control over the cost—a factor that would become increasingly critical as the Model 3 rolled off the assembly line. Competition was also around the corner. For example, Volkswagen was developing a much longer-range vehicle battery that would pose serious competition to Tesla.

To counter these issues, the potentially game-changing supply chain initiative was Tesla’s decision to integrate backward into its $5 billion “gigawatt” battery production plant in Reno, Nevada, which was staffed by 10,000 workers. Tesla expected the Gigafactory would be able to churn out cheaper and longer-lasting batteries (the current batteries could go 265 miles [426 kilometres] without a charge) by virtue of scale and other efficiencies.[[29]](#endnote-29) The 6-million-square-foot (557-square-metre) facility would start producing its homegrown batteries in 2017—the same year as the expected delivery of the Model 3. The facility was expected to grow to more than 1,000 acres (43.56 million square feet). Tesla projected the Gigafactory would produce 35 gigawatt hours of batteries per year by 2018. The Gigafactory would be completely sustainable by using renewable energy from numerous metal windmills to generate electricity for the factory. Tesla also was reportedly looking at building another similar plant outside of North America.[[30]](#endnote-30)

Nevada was a superb location for the Gigafactory. The first activity of the lithium battery value chain was mining, which was primarily located in Argentina, Chile, Bolivia, Australia, and eastern China. The second activity was shipping the lithium to battery makers in Asia, which was costly because of the long distances involved, except from the mines in China. The final activity was the assembly of the battery and the profit added on by the assemblers.

Tesla’s Gigafactory could reduce costs across the entire value chain. Nevada had an ample source of lithium. Tesla planned to buy lithium from Pure Energy Minerals, a mining company that was under development 200 miles (322 kilometres) from Reno. Tesla would pay Pure Energy a “predetermined price that is below current market rates.” Pure Energy would reportedly borrow a page from the fracking playbook, by drilling holes in the ground and pumping saltwater into those holes. The water would then be pumped back to the surface, and the lithium would be extracted from the brine. This mining method would significantly reduce the cost of the lithium.[[31]](#endnote-31) Tesla was also interested in sourcing lithium from mines in Northern Mexico and Canada.

Acquisition of SolarCity

On November 21, 2016, Tesla acquired SolarCity for $2.6 billion.[[32]](#endnote-32) The deal made sense since the combined companies now produced three related products—solar power, power storage, and electric cars. Moreover, SolarCity had the largest market share (32 per cent) of the U.S. residential solar market. The former CEO of SolarCity commented that the deal would boost the development of renewable energy, and SolarCity might be able to lower its costs by virtue of Tesla’s brand and its retail stores. SolarCity’s customer acquisition costs were nearly 30 per cent of the total cost of a home-based solar panel system.[[33]](#endnote-33) If the price to the homeowner could be reduced, then doing so might accelerate adoption of solar panels. This step could benefit both the solar panel industry and the users of renewable energy. Tesla would also benefit by leveraging SolarCity’s installers to install electric car chargers at residences. The arrangement gave Tesla the type of integration it needed on the most important vehicle component. With the merger, Musk estimated that more than a half a billion dollars in cash would be added to Tesla’s balance sheet over the next three years. He further estimated that Tesla would save $150 million from combined marketing and sales operations, and from lower corporate expenses and savings in overhead costs.[[34]](#endnote-34)

The acquisition came with a twist for Tesla’s business model: its corporate image was now irrevocably different. Three months earlier, Musk had laid out a master plan to position Tesla both as an energy company selling solar panels and batteries and as an automobile manufacturer with an expanding product line eventually to include electric cars, buses, semi-trucks, and pickups. On February 1, 2017, Tesla formally changed its name to Tesla, Inc.—dropping the word “Motors”:

We design, develop, manufacture and sell high-performance fully electric vehicles and design, manufacture, install and sell solar energy generation and energy storage products. Our Chief Executive Officer, as the chief operating decision maker (“CODM”), organizes the Company, manages resource allocations and measures performance among two segments: (i) automotive and (ii) energy generation and storage.[[35]](#endnote-35)

THE ROAD AHEAD FOR TESLA’S BUSINESS MODEL

From looking at its financials, it seemed that Tesla should have failed long ago. Since 2010, as it continued to pour its revenue back into the company, Tesla had recorded no positive EBIT (earnings before interest and taxes), no positive net income, and no positive free cash flow. In mid-2017, negative returns on assets, negative returns on equity, negative returns on invested capital, negative net margins, and negative earnings per share accompanied a debt/equity ratio of 1.4, a current ratio of 0.97, and a quick ratio of 0.53.[[36]](#endnote-36)

According to *Car and Driver*, 27 different electric plug-ins or hybrids were either in design or available for purchase for the model year 2017–18.[[37]](#endnote-37) Some models, including some produced by Detroit’s Big Three, were *already* available and *already* priced below the lowest-priced Model 3.[[38]](#endnote-38) On July 5, 2017, Volvo announced that all of its 2019 models forward would be solely electric.[[39]](#endnote-39) Analysts nevertheless remained bullish on Tesla, given its integrated battery production. By one estimate, the battery for the Model 3 costs $8,400 to produce, whereas the industry average price was $14,200 for a battery for a comparable vehicle.[[40]](#endnote-40)

If the integrated battery production through SolarCity was Tesla’s edge, would Tesla be able to produce enough cars to meet demand? With rock-star charisma reminiscent of that shown by Steve Jobs, Musk introduced the Model 3 to the world on July 28, 2017, with drama, jokes, and confessions. He admitted Tesla was going to be going through “production hell” by ramping up production for the Model 3. The advice from the CEO/CODM? “As the saying goes, if you are going through hell, keep going!”[[41]](#endnote-41) He admitted that if you ordered a Model 3 that day, you probably would not receive delivery until the end of 2018. Musk disclosed more tantalizing facts on a conference call on August 2, 2017: Tesla already had 455,000 reservations (net) for the Model 3 and expected to produce 1,500 Model 3 vehicles per week in 2017-Q3, 5,000 per week by the end of 2017, and double that number by the end of 2018.[[42]](#endnote-42) This “production hell” was quickly becoming a topic of concern for the non-unionized Fremont plant workers who alleged that shortcuts had been taken in the Model 3 prototyping stage and feared increased worker injuries due to rushed production schedules.[[43]](#endnote-43)

Notwithstanding these data points, Tesla continued to be the darling of many investors. On August 11, 2017, Tesla announced a new $1.8 billion unsecured senior note offering due in 2025 at an interest rate of 5.3 per cent.[[44]](#endnote-44) Investors accepted Tesla’s sales pitch on the new debt. A day before the offering, Tesla’s stock closed at $355.33 a share. Four days later, it opened at $364.63 per share.[[45]](#endnote-45) During the 12-month period leading up to the unveiling of the Model 3, Tesla’s stock outperformed by substantial margins the share prices of such competitors as GM, Daimler, BMW, Volkswagen, and Toyota. In April 2017, Tesla became the largest U.S.-based automaker per market capitalization. It did not seem to matter that GM had sold 10 million cars in 2016 compared with Tesla’s 2016 sales of 76,000 cars.[[46]](#endnote-46)

Could Tesla’s business model withstand diminishing exclusivity yet maintain the image of a premium car at lower price points? Alternatively, should Tesla maintain its narrow niche to appeal to the environmentally conscious sports car enthusiasts who had money to spare?

Exhibit 1: Tesla Inc.’s Consolidated Balance Sheets, 2015–2016 (in US$ thousands)

|  |  |  |
| --- | --- | --- |
|  | **Dec. 31, 2015** | **Dec. 31, 2016** |
| **Current assets** |  |  |
| Cash and cash equivalents | 1,196,908 | 3,393,216 |
| Restricted cash | 22,628 | 105,519 |
| Accounts receivable, net | 168,965 | 499,142 |
| Inventory | 1,277,838 | 2,067,454 |
| Prepaid expenses and other current assets | 115,667 | 194,465 |
| Total current assets | 2,782,006 | 6,259,796 |
| Operating lease net | 1,791,403 | 3,134,080 |
| Solar energy systems, leased and to be leased, net | – | 5,919,880 |
| Property, plant and equipment, net | 3,403,334 | 5,982,957 |
| Intangible assets, net | 12,816 | 376,145 |
| MyPower customer notes receivable, net of current portion | – | 506,302 |
| Restricted cash, net of current portion | 31,522 | 268,165 |
| Other assets | 46,858 | 216,751 |
| Total assets | 8,067,939 | 22,664,076 |
| **Current liabilities** |  |  |
| Accounts payable | 916,148 | 1,860,341 |
| Accrued liabilities and other | 422,798 | 1,210,028 |
| Deferred revenue | 423,961 | 763,126 |
| Resale value guarantees | 136,831 | 179,504 |
| Customer deposits | 283,370 | 663,859 |
| Current portion of long-term debt and capital leases | 627,927 | 984,211 |
| Current portion of solar bonds issued to related parties | – | 165,936 |
| Total current liabilities | 2,811,035 | 5,827,005 |
| Long-term debt and capital leases, net of current portion | 2,021,093 | 5,860,049 |
| Solar bonds issued to related parties, net of current portion | – | 99,164 |
| Convertible senior notes issued to related parties | – | 10,287 |
| Deferred revenue, net of current portion | 446,105 | 851,790 |
| Resale value guarantees, net of current portion | 1,293,741 | 2,210,423 |
| Other long-term liabilities | 364,976 | 1,891,449 |
| Total liabilities | 6,936,950 | 16,750,167 |
| Commitments and contingencies (Note 17) | – | – |
| Redeemable noncontrolling interests in subsidiaries |  | 367,039 |
| Convertible senior notes (Notes 13) | 47,285 | 8,784 |
| **Stockholders’ equity:** |  |  |
| Preferred stock; $0.001 par value; 100,000 shares authorized; no shares issued and outstanding | – | – |
| Common stock; $0.001 par value; 2,000,000 shares authorized as of December 31, 2016 and 2015; 161,561 and 131,425 shares issued and outstanding as of December 31, 2016 and 2015, respectively | 131 | 161 |
| Additional paid-in capital | 3,409,452 | 7,773,727 |
| Accumulated other comprehensive loss | (3,556) | (23,740) |
| Accumulated deficit | (2,322,323) | (2,997,237) |
| Total stockholders’ equity | 1,083,704 | 4,752,911 |
| Non-controlling interests in subsidiaries | – | 785,175 |
| Total liabilities and equity | 8,067,939 | 22,664,076 |
| Solar Energy Systems [Member] |  |  |
| **Current assets** |  |  |
| Operating lease net | – | 5,919,880 |
| Solar Bonds [Member] | – | – |
| **Current liabilities** |  |  |
| Current portion of solar bonds issued to related parties | – | 165,936 |
| Solar bonds issued to related parties, net of current portion | – | 99,164 |

Source: United States Security and Exchange Commission, SEC Form 10-K, 56, filed by Tesla, Inc. on March 1, 2017 accessed August 13, 2017, www.sec.gov/Archives/edgar/data/1318605/000156459017003118/tsla-10k\_20161231.htm#

Consolidated\_Balance\_Sheets.

Exhibit 2: Tesla Inc.’s Consolidated Balance Sheets, December 31, 2016, and June 30, 2017 (Unaudited) (in US$ thousands)

|  |  |  |
| --- | --- | --- |
|  | **Dec. 31, 2016** | **Jun. 30, 2017** |
| **Current assets** |  |  |
| Cash and cash equivalents | 3,393,216 | 3,035,924 |
| Restricted cash | 105,519 | 118,369 |
| Accounts receivable, net | 499,142 | 453,539 |
| Inventory | 2,067,454 | 2,438,111 |
| Prepaid expenses and other current assets | 194,465 | 313,501 |
| Total current assets | 6,259,796 | 6,359,444 |
| Operating lease vehicles, net | 3,134,080 | 3,600,821 |
| Solar energy systems, leased and to be leased, net | 5,919,880 | 6,218,504 |
| Property, plant and equipment, net | 5,982,957 | 8,399,229 |
| Intangible assets, net | 376,145 | 380,847 |
| Goodwill | – | 43,766 |
| MyPower customer notes receivable, net of current portion | 506,302 | 472,663 |
| Restricted cash, net of current portion | 268,165 | 358,445 |
| Other assets | 216,751 | 209,986 |
| Total assets | 22,664,076 | 26,043,705 |
| **Current liabilities** |  |  |
| Accounts payable | 1,860,341 | 2,359,316 |
| Accrued liabilities and other | 1,210,028 | 1,510,744 |
| Deferred revenue | 763,126 | 913,398 |
| Resale value guarantees | 179,504 | 342,824 |
| Customer deposits | 663,859 | 603,540 |
| Current portion of long-term debt and capital leases | 984,211 | 716,533 |
| Total current liabilities | 5,827,005 | 6,546,355 |
| Long-term debt and capital leases, net of current portion | 5,860,049 | 7,122,862 |
| Solar bonds issued to related parties, net of current portion | 99,164 | 100 |
| Convertible senior notes issued to related parties | 10,287 | 2,444 |
| Deferred revenue, net of current portion | 851,790 | 1,035,579 |
| Resale value guarantees, net of current portion | 2,210,423 | 2,493,024 |
| Other long-term liabilities | 1,891,449 | 2,259,538 |
| Total liabilities | 16,750,167 | 19,459,902 |
| Commitments and contingencies (Note 14) |  |  |
| Redeemable noncontrolling interests in subsidiaries | 367,039 | 367,377 |
| Convertible senior notes (Notes 11) | 8,784 | 1,688 |
| **Stockholders’ equity** |  |  |
| Preferred stock; $0.001 par value; 100,000 shares authorized; no shares issued and outstanding | – | – |
| Common stock; $0.001 par value; 2,000,000 shares authorized; 166,863 and 161,561 shares issued and outstanding as of June 30, 2017 and December 31, 2016, respectively | 161 | 163 |
| Additional paid-in capital | 7,773,727 | 8,774,212 |
| Accumulated other comprehensive gain (loss) | (23,740) | 10,961 |
| Accumulated deficit | (2,997,237) | (3,679,584) |
| Total stockholders’ equity | 4,752,911 | 5,105,752 |
| Noncontrolling interests in subsidiaries | 785,175 | 1,108,986 |
| Total liabilities and equity | 22,664,076 | 26,043,705 |
| Operating Lease Vehicles [Member] |  |  |
| **Current assets** |  |  |
| Operating lease net | 3,134,080 | 3,600,821 |
| Solar Energy Systems [Member] |  |  |
| **Current assets** |  |  |
| Operating lease net | 5,919,880 | 6,218,504 |
| Solar Bonds [Member] |  |  |
| **Current liabilities** |  |  |
| Current portion of solar bonds and promissory notes issued to related parties | 165,936 | 100,000 |
| Solar bonds issued to related parties, net of current portion | 99,164 | 100 |

Source: United States Security and Exchange Commission, SEC Form 10-Q, 4, filed by Tesla, Inc. on August 4, 2017, accessed August 13, 2017, www.sec.gov/Archives/edgar/data/1318605/000156459017015705/tsla-10q\_20170630.htm.

Exhibit 3: Tesla Inc.’s Consolidated Statements of Operations, June 2016 and june 2017 (Unaudited) (in US$ thousands with Shares in thousands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **3 Months Ended** | | **6 Months Ended** | |
| **Jun. 30, 2016** | **Jun. 30, 2017** | **Jun. 30, 2016** | **Jun. 30, 2017** |
| **Revenues** |  |  |  |  |
| Automotive sales | 1,030,224 | 2,013,852 | 1,932,116 | 4,048,912 |
| Automotive leasing | 151,628 | 272,764 | 275,800 | 527,304 |
| Total automotive revenues | 1,181,852 | 2,286,616 | 2,207,916 | 4,576,216 |
| Energy generation and storage | 3,947 | 286,780 | 26,675 | 500,724 |
| Services and other | 84,218 | 216,161 | 182,474 | 408,887 |
| Total revenues | 1,270,017 | 2,789,557 | 2,417,065 | 5,485,827 |
| **Cost of revenues** |  |  |  |  |
| Automotive sales | 827,231 | 1,472,578 | 1,540,380 | 2,969,227 |
| Automotive leasing | 82,051 | 175,433 | 148,218 | 341,459 |
| Total automotive cost of revenues | 909,282 | 1,648,011 | 1,688,598 | 3,310,686 |
| Energy generation and storage | 8,159 | 203,762 | 26,272 | 355,535 |
| Services and other | 77,800 | 271,169 | 174,951 | 485,045 |
| Total cost of revenues | 995,241 | 2,122,942 | 1,889,821 | 4,151,266 |
| Gross profit | 274,776 | 666,615 | 527,244 | 1,334,561 |
| **Operating expenses** |  |  |  |  |
| Research and development | 191,664 | 369,774 | 374,146 | 691,814 |
| Selling, general and administrative | 321,152 | 537,757 | 639,362 | 1,141,212 |
| Total operating expenses | 512,816 | 907,531 | 1,013,508 | 1,833,026 |
| Loss from operations | (238,040) | (240,916) | (486,264) | (498,465) |
| Interest income | 2,242 | 4,785 | 3,493 | 7,875 |
| Interest expense | (46,368) | (108,441) | (86,993) | (207,787) |
| Other (expense) income, net | (7,373) | (41,208) | 1,804 | (59,306) |
| Loss before income taxes | (289,539) | (385,780) | (567,960) | (757,683) |
| Provision for income taxes | 3,649 | 15,647 | 7,495 | 40,925 |
| Net loss | (293,188) | (401,427) | (575,455) | (798,608) |
| Net loss attributable to noncontrolling interests and redeemable noncontrolling interests in subsidiaries | – | (65,030) | – | (131,934) |
| Net loss attributable to common stockholders | (293,188) | (336,397) | (575,455) | (666,674) |
| Net loss per share of common stock attributable to common stockholders, basic and diluted | (2.09) | (2.04) | (4.22) | (4.07) |
| Weighted average shares used in computing net loss per share of common stock, basic and diluted | 139,983 | 165,212 | 136,330 | 163,679 |

Source: United States Security and Exchange Commission, SEC Form 10-Q, 5, filed by Tesla, Inc. on August 4, 2017, accessed August 13, 2017, www.sec.gov/Archives/edgar/data/1318605/000156459017015705/tsla-10q\_20170630.htm.

Exhibit 4: Tesla Inc.’S Unaudited Consolidated Statements of Cash Flows, June 2016 and June 2017 (In US$ thousands)

|  |  |  |
| --- | --- | --- |
|  | **6 Months Ended** | |
| **Jun. 30, 2016** | **Jun. 30, 2017** |
| **Cash Flows From Operating Activities** |  |  |
| Net loss | (575,455) | (798,608) |
| **Adjustments to reconcile net loss to net cash used in operating activities:** |  |  |
| Depreciation and amortization | 339,692 | 765,773 |
| Stock-based compensation | 156,969 | 219,759 |
| Amortization of debt discounts | 41,696 | 64,151 |
| Inventory write-downs | 29,725 | 71,255 |
| Loss on disposal of property and equipment | 11,563 | 53,572 |
| Foreign currency transaction loss (gain) | (8,081) | 29,394 |
| Loss on the acquisition of SolarCity | – | 11,571 |
| Non-cash interest and other operating activities | 16,167 | 57,023 |
| **Changes operating assets and liabilities, net of effect of business combinations** |  |  |
| Accounts receivable | (1,426) | 77,043 |
| Inventories and operating lease vehicles | (1,217,931) | (1,121,155) |
| Prepaid expenses and other current assets | 19,494 | (113,192) |
| MyPower customer notes receivable and other assets | (7,447) | 26,339 |
| Accounts payable and accrued liabilities | 212,949 | 13,234 |
| Deferred revenue | 165,144 | 208,685 |
| Customer deposits | 398,555 | (71,064) |
| Resale value guarantee | 253,710 | 176,505 |
| Other long-term liabilities | 65,407 | 59,732 |
| Net cash used in operating activities | (99,269) | (269,983) |
| **Cash Flows from Investing Activities** |  |  |
| Purchases of property and equipment excluding capital leases, net of sales | (511,579) | (1,511,692) |
| Maturities of short-term marketable securities | 16,667 | – |
| Purchase of solar energy systems, leased and to be leased | – | (418,792) |
| Increase in restricted cash | (58,761) | (102,528) |
| Business combination, net of cash acquired | – | (109,147) |
| Net cash used in investing activities | (553,673) | (2,142,159) |
| **Cash Flows from Financing Activities** |  |  |
| Proceeds from issuance of common stock in public offering | 1,701,734 | 400,175 |
| Proceeds from issuance of convertible and other debt | 1,108,000 | 2,408,586 |
| Repayments of convertible and other debt | (578,683) | (1,412,286) |
| Repayments of borrowings under solar bonds issued to related parties | – | (165,000) |
| Collateralized lease borrowings | 384,525 | 335,675 |
| Proceeds from exercise of stock options and other stock issuances | 110,478 | 158,913 |
| Principal payments on capital leases | (18,270) | (36,857) |
| Common stock and debt issuance costs | (15,765) | (13,688) |
| Purchase of convertible note hedges | – | (204,102) |
| Proceeds from settlement of convertible note hedges | – | 251,850 |
| Proceeds from issuance of warrants | – | 52,883 |
| Payments for settlement of warrants | – | (208,193) |
| Proceeds from investment by noncontrolling interests in subsidiaries | – | 583,433 |
| Distributions paid to noncontrolling interests in subsidiaries | – | (123,873) |
| Net cash provided by financing activities | 2,692,019 | 2,027,516 |
| Effect of exchange rate changes on cash and cash equivalents | 10,316 | 27,334 |
| Net (decrease) increase in cash and cash equivalents | 2,049,393 | (357,292) |
| Cash and cash equivalents, beginning of period | 1,196,908 | 3,393,216 |
| Cash and cash equivalents, end of period | 3,246,301 | 3,035,924 |
| **Supplemental noncash investing and financing activities** |  |  |
| Acquisition of property and equipment included in liabilities | 324,982 | 1,021,692 |
| Estimated fair value of facilities under build-to-suit leases | 172,770 | 173,075 |

Source: United States Security and Exchange Commission, SEC Form 10-Q, 7, filed by Tesla, Inc. on August 4, 2017, accessed August 13, 2017, www.sec.gov/Archives/edgar/data/1318605/000156459017015705/tsla-10q\_20170630.htm

Exhibit 5: Tesla, Inc.’S Free Cash Flows, 2012–2016 (in us$ millions)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **FY (end of year data)** | **2012** | **2013** | **2014** | **2015** | **2016** | **TTM** |
| Operating cash flow | –266 | 258 | –57 | –524 | –124 | –295 |
| Capital expenditure | 239 | 264 | 970 | 1,635 | 1,440 | 2,859 |
| Free cash flow | –505 | –6 | –1,027 | –2,159 | –1,564 | –3,154 |

Note: FY = financial year; TTM = trailing twelve months

Source: “Tesla Inc TSLA: Morningstar Rating,” Morningstar, accessed August 13, 2017, http://financials.morningstar.com/cash-flow/cf.html?t=TSLA&region=usa&culture=en-US.

Exhibit 6: Tesla, Inc.’S EBI, EBIT, and Net Income, 2010–2016 (In US$ millions)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **FY (end of year data)** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
| EBIT | –146.838 | –251.488 | –394.283 | –61.283 | –186.689 | –716.629 | –645.64 |
| EBI | –136.215 | –234.569 | –365.458 | 44.8 | 45.242 | –294.039 | 301.459 |
| Net Income | –154.328 | –254.411 | –396.213 | –74.014 | –294.04 | –888.663 | –674.914 |

Note: EBI = earnings before interest; EBIT = earnings before interest and taxes; FY = financial year

Source: Created by authors using data from Wharton Research Data Services, “Complete Financial Statements (XLS),” accessed August 11, 2017, https://wrds.wharton.upenn.edu.

Endnotes

1. This case has been written on the basis of published sources only. Consequently, the interpretation and perspectives presented in this case are not necessarily those of Tesla Motors, Inc. or any of its employees. [↑](#endnote-ref-1)
2. All currency amounts are shown in US$. [↑](#endnote-ref-2)
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