

Is Tesla's Stock Price in Ludicrous Mode?¹

By the fall of 2015, Tesla was well on its way to executing the biggest game change in the auto industry since Ford introduced the Model T. The ascendancy of the Model T in 1908 initially gave rise to the dominance of the internal combustion engine. Before that, electric vehicles (EVs) shared the road in similar numbers to gas-powered vehicles. The next century saw numerous attempts to introduce EVs, but all met with failure. Perhaps the best known was GM's EV1, the first mass-produced electric car from a major automaker. Over 1,000 EV1s were produced between 1996 and 1999. But in 2002, GM declared it an unprofitable niche, repossessing and destroying the EV1s. Critics argued that GM was concerned with cannibalizing its traditional gas-powered vehicle sales, and particularly the lucrative spare-parts market, since EVs require less maintenance and replacement parts.

Interest in electric vehicles was rekindled in 2004 when a dynamic young entrepreneur called Elon Musk took control of a fledgling EV company called Tesla and set out on a mission to create affordable mass-market EVs. Tesla's first vehicle, the Roadster, hit the market in 2008. Employing lithium-ion battery technology, it was the first mass-produced EV to have a range in excess of 200 miles on a single charge. The Roadster was a small two-seat sports car based on a Group Lotus body. Musk's next project was a four-door electric sedan designed and produced by Tesla from the bottom-up. To help with its burgeoning financing needs, Tesla went public in 2010. The Model S hit the auto market in 2012 to wide critical claim. A family-style four-door sedan with sleek looks and high performance, Tesla was selling over 20,000 units per year by 2013. Tesla's next project was the Model X, an electric SUV with gull-wing doors and a high

¹This case was prepared by Professor Richard Sloan as the basis for class discussion, rather than to illustrate either effective or ineffective handling of a business situation. Copyright 2016 by Richard Sloan.

sticker price. Hitting the market late in 2015, initial deliveries failed to meet expectations due to production problems. These initial models laid the groundwork for Musk's grand vision of an affordable mass-produced electric car. A tweet on July 16 2015 confirmed that this car would be called the Model 3, with first deliveries subsequently slated for late 2017.

Despite Tesla's remarkable accomplishments, the company also faced a number of challenges in its quest to revolutionize the auto industry. First, Tesla was making large losses and requiring huge inflows of cash to fund its ever-increasing investment expenditures. Analysts questioned many aspects of Tesla's business model, including Tesla's vertically integrated distribution network, generous resale value guarantees and lengthy warranties. Tesla also faced growing competition, particularly in its target Model 3 market. The Nissan Leaf had long been available in this segment and the Toyota Prius had long provided an attractive hybrid alternative for energy-conscious drivers. In the luxury market, Mercedes, BMW and Volvo all had plans to compete in the EV segment. Despite these challenges, Tesla's stock price was soaring. After initially pricing at around \$20 in 2010, Tesla's stock price was in the mid \$200s by late 2015. The huge run-up led many commentators to argue that Tesla was overpriced. For example, in an article published in the *Journal of Portfolio Management*, two respected finance academics concluded that Tesla's stock price was two and one-half times an aggressively optimistic value estimate.²

Tesla's 2014 Form 10-K and related case materials (including extracts from Ford's 2014 Form 10-K and extracts from an analyst report) are provided as an online exhibit at <http://www.lundholmandsloan.com/new%20cases.html>. Use this information to answer the following questions:

² See Cornell, B. and A. Damodaran, "Tesla: Anatomy of a Run-Up", *Journal of Portfolio Management*, Fall (2014), 139-151.

QUESTIONS

Business Strategy Analysis

1. Tesla has a distribution model that is not common in the automobile industry. Briefly describe Tesla's distribution model.
2. List the key success factor and key risks associated with Tesla's distribution model.

Accounting Analysis

3. Tesla uses lease accounting for automotive sales under its resale value guarantee program. Assume that instead of using lease accounting for automotive sales under its resale value guarantee program, Tesla instead recognized these sales and the associated cost of sales at the inception of the sale. Estimate the Income (Loss) from operations that Tesla would have reported for 2014.
4. Summarize the accounting policy that Tesla uses for warranties.
5. Assume that instead of using its current accounting policy for warranties, Tesla instead expensed all warranty costs as costs were incurred. Estimate the Income (Loss) from operations that Tesla would have reported for 2014.
6. Which of the above two accounting methods for warranties do you think best reflects the underlying economics of the warranty obligations? Briefly explain your answer.

Ratio and Cash Flow Analysis

7. Compute the net operating asset (NOA) turnover ratios for Tesla and Ford for 2014.
8. Summarize the primary reason(s) for the difference between the NOA turnover ratios that you computed above.
9. Compute the gross margin on automotive sales for Tesla and Ford for 2014.

10. Summarize the primary reason(s) for the difference between the gross margins that you computed above.

Forecasting and Valuation

11. The research report provided as Exhibit 3 with the case materials forecasts that Tesla's non-GAAP operating margin (% OM) margin will grow from 1.5% in 2014 to 9.8% in 2017 (see Chart 22 of the report). Identify the key drivers of the improved margin
12. The research report forecasts that Tesla's 'Operating Lease Vehicles, Other' balance will grow from 821.3 in 2014 to 1,193.5 in 2017 (see Chart 24 of the report). Briefly evaluate the plausibility of this forecasting assumption.
13. The research report forecasts that Tesla's 'Revenue' will grow 11.0% in 2025, while Tesla's 'FCFF' will grow 17% in 2025 (see Chart 21 of the report). Identify the primary reason(s) for the differing growth rates.
14. In the fall of 2015, Tesla was trading at around \$250/share. Provide a full set of forecast financial statements out at least 10 years into the future and an associated valuation model to try and 'reverse engineer' this valuation. Use a cost of equity of 8% and a valuation date of 9/17/2015. Do you think that the valuation is reasonable? If not, provide a more reasonable valuation. (Note: you may use eVal for this question, but you are not required to do so).