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Musk's $56 billion: Pay, Incentives, or Rewards?

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Abstract

The pay package of Elon Musk, the CEO of Tesla, has featured prominently in the news in recent months. Articles related to the size of his pay and the legal battle over the pay package have appeared in numerous media outlets including the Wall Street Journal, Fortune, CBS News, Barron's, PBS News, Reuters, and NPR, to name just a few. The most frequently mentioned headline number for the CEO's compensation is $56 billion. Even a cursory study of the pay package, however, shows that this number is not the CEO's annual pay, which is the usual focus of comparison across CEOs by media and academics. We perform a detailed analysis of Tesla's compensation contract and make three contributions. (i) We find that the compensation design is consistent with sound contracting principles. (ii) We use the Tesla case study to focus attention on three critical elements of CEO compensation: the cost to the company ("annual pay"), the incentives embedded in the pay package to motivate the CEO's future performance, and the estimated maximum rewards to the CEO based on these performance incentives. (iii) We show that the sound-bite figure of $56 billon is not the cost, is not the incentives, and is only loosely related to the estimated maximum rewards to the CEO.

Keywords: Executive Compensation, CEO Pay, CEO Incentives, CEO Rewards, Tesla, Elon Musk, $56 billion

JEL Classifications: G32, G34

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Abstract

The pay package of Elon Musk, the CEO of Tesla, has featured prominently in the news in recent months. Articles related to the size of his pay and the legal battle over the pay package have appeared in numerous media outlets including the Wall Street Journal, Fortune, CBS News, Barron's, PBS News, Reuters, and NPR, to name just a few. The most frequently mentioned headline number for the CEO's compensation is $56 billion. Even a cursory study of the pay package, however, shows that this number is not the CEO's annual pay, which is the usual focus of comparison across CEOs by media and academics. We perform a detailed analysis of Tesla's compensation contract and make three contributions. (i) We find that the compensation design is consistent with sound contracting principles. (ii) We use the Tesla case study to focus attention on three critical elements of CEO compensation: the cost to the company ("annual pay"), the incentives embedded in the pay package to motivate the CEO's future performance, and the estimated maximum rewards to the CEO based on these performance incentives. (iii) We show that the sound-bite figure of $56 billon is not the cost, is not the incentives, and is only loosely related to the estimated maximum rewards to the CEO.

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The idea was born following Drexel finance department luncheon discussions on Tesla CEO's pay.

Musk's $56 billion: Pay, Incentives, or Rewards?

Executive compensation is a complex and, sometimes, controversial topic that attracts scrutiny from a variety of interested stakeholders—investors, regulators, and politicians. Some will recall the controversy 30 years ago over the $203 million payout in 1993 by Disney to Michael Eisner. While this number seemed large at the time, it now looks a bit like a fly on a battleship. Things have changed.

The most recent fuss is about the pay package to Elon Musk, CEO of Tesla. The headline number reported in the media and at cocktail parties has been $56 billion.[1] Pundits indicate that such a figure paid in dollar bills laid end to end would circle the globe 222 times and would exceed the GDP of 123 countries and territories worldwide. That's a lot of paper!

Anybody who has done any research in executive compensation will immediately recognize that no CEO in history has been paid anywhere close to even a billion dollars, so a $56 billion should lead one to immediately scrutinize the number closely.[2] Consequently, we perform a careful analysis of Tesla's compensation contract.

First, we try to understand how this $56 billion is related to the three dimensions of executive pay: the *cost* to the firm of the CEO's pay package, the *incentives* that arise from the pay package to motivate the CEO's future performance, and the *rewards* realized by the CEO due to their

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[1] We provide some examples of media coverage of the compensation package: (i) Jan 30th ruling voiding the 2018 package (https://www.cnbc.com/2024/01/30/tesla-shares-slide-after-judge-voids-elon-musks-56-billion-compensation.html); (ii) Shareholders voting to ratify 2018 pay package after Delaware court voided it (https://www.cnbc.com/2024/06/13/tesla-shareholder-elon-musk-pay-package-at-annual-meeting.html); (iii) Coverage by financial media (https://www.bloomberg.com/news/articles/2024-05-20/tesla-shareholder-group-slams-musk-s-56-billion-pay-package; https://www.wsj.com/business/tesla-musk-pay-package-approved-826f71cc; https://www.foxbusiness.com/technology/tesla-opponents-musks-pay-package-clash-over-resolving-compensation-lawsuit); and (iv) Coverage by regular news media (https://www.reuters.com/legal/judge-rules-favor-plaintiffs-challenging-musks-tesla-pay-package-2024-01-30/; https://apnews.com/article/musk-pay-compensation-corporate-registration-ef5e30f6b56f7d936f8c882fc1c96875; https://www.pbs.org/newshour/economy/tesla-wants-shareholders-to-reinstate-56-billion-musk-pay-package-tossed-by-a-delaware-judge; https://www.cbsnews.com/news/tesla-shareholders-advised-to-reject-elon-musk-56-billion-pay/).

[2] For the Execucomp sample of S&P1500 firms from 1992-2023, the highest total annual compensation (Execucomp variable: TDC1) was $655 million for Charles Wang of CA Inc. in the year 1998. [Stephen Shwarzman of Blackstone is mistakenly attributed a total compensation of $4.8 billion in the database.]

performance. We find that that this $56 billion is not related to the cost or the incentives, but only loosely related to the maximum rewards that the CEO could earn. Thus, this clickbait figure of $56 billon is misleading. In fact, the cost to the firm of the pay package is only $2.3 billion. This is the number that is closest to what is considered "annual pay" when comparisons of CEO pay are made. In the case of Tesla, however, a better approximation of "annual pay" would be $230 million which is $1/10^{th}$ the amount because the CEO's pay package was meant for 10 years. Indeed, the CEO has not received any pay since 2018.

How do we square $2.3 billion with $56 billion? The $56 billion is one estimate of the maximum reward that Tesla's CEO could earn and does not consider the probability of earning that amount. It is like knowing that you could win $1 billion dollars when you play the Powerball lottery, but the probability of winning the lottery is very low. As we discuss later in Section 3.7, one estimate of the probability that Tesla's CEO could earn the $56 billion reward is 1.2%. The cost to the firm not only accounts for the maximum reward but also the probability of earning that reward. Since the probability of earning the reward was very low, the cost as estimated by the firm is only $2.3 billion. This is what is reported as "fair value" of the awards by the firm in its proxy statement.

Second, we scrutinize the 2018 pay package that is at the heart of this controversy. We find no obvious flaw in the design of the contract. In fact, the design seems consistent with sound contracting principles.

The rest of the paper is organized as follows. Section 1 points out that the headline number of $56 billion is not the annual pay that is typically compared across CEOs. In Section 2, we try to ascribe some sort of meaning to the $56 billion. Section 3 delves into the various features of the 2018 compensation contracts and comments on the optimality of these features in the design of executive compensation. Section 4 discusses three dimensions of executive compensation—annual pay, incentives, and rewards—that need to be considered to make a holistic assessment of any

compensation package. We then assess Tesla's compensation package along these three dimensions. Section 5 provides some concluding thoughts.

1. $56 billion is not the annual pay

With a few mouse clicks, it is easy to determine that the cost of the CEO pay package to the firm was $2.3 billion and not $56 billion.[3] This value is estimated by firms as per clearly-laid-out accounting standards. This $2.3 billion is the closest to what is considered annual pay. Indeed, when the media report the highest-paid executives for a given year, this is the information that they collect and compare for the top 100 firms to identify the highest-paid CEOs.[4]

Here (https://www.reuters.com/business/elon-musk-tops-list-largest-us-corporate-pay-packages-2024-01-30/) is one example of a news article comparing $56 billion of Tesla CEO with the annual pay of other CEOs, when the comparison should be between $2.3 billion and the annual pay of other CEOs. Most articles referenced in footnote 1 have the headline of $56 billion, which has misled most people, including academics and finance industry professionals, into thinking that $56 billion was the annual pay to the Tesla CEO.

2. Where is the $56 billion number coming from?

The $56 billion number widely reported in the media is related to Tesla's 2018 compensation award to its CEO. There are two possible sources for this number. Section 2.1 and Section 2.2 discuss these two measures in detail.

2.1. Current estimate of CEO rewards (excluding exercise cost)

The $56 billion is the market value of shares that the CEO would own if the stock price stays

[3] In Google search, type in "2019 Tesla proxy definitive". The 3rd link references the 2019 definitive proxy filing. In the Table of Contents, click on the link "Grants of Plan-Based Awards in 2018" to see the number in page 62 of the filing.

[4] See for example: https://www.wsj.com/business/highest-paid-ceo-2023-charts-0d65be3b

above $23.34 and the CEO exercises the options, which he has earned because Tesla's stock performance and operational performance has hit all the targets set forth in the 2018 compensation contract. This reward fluctuates depending on Tesla's stock price. That is why we term this the "current estimate".

Seven aspects of the earlier statement need elaboration. (i) The market value. (ii) Shares that the CEO will own in the future. (iii) Stock price stays above $23.34. (iv) The CEO exercises the options. (v) Options have been earned. (vi) Tesla's stock and operational performance targets. (vii) 2018 compensation contract. We will tackle this one by one.

2.1.1. The market value

Under the compensation agreement, the CEO earned options that allow him to own 303,960,630 shares in the future. The closing stock price of Tesla was $182.47 on June 13th, 2024, the day the shareholders voted to ratify the 2018 pay package after the Delaware court voided the same on January 30th, 2024. Before the CEO could own the shares, he has to "exercise" the options, as discussed below. The market value, if the CEO had exercised the options, would have been 303,960,630 × $182.47 = $55.46 billion, which seems to have been rounded up to $56 billion by the press.

2.1.2. Shares that the CEO will own in the future

The CEO currently does not own shares, but rather options on Tesla. Options give the CEO the right to purchase Tesla shares at a fixed price (also known as "exercise" price). Of course, the option holders will exercise their rights only if the share price stays above the exercise price. Otherwise, they might as well buy the shares in the open market.

2.1.3. Stock price stays above $23.34

The CEO was not granted shares but was granted options at the exercise price of $23.34.[5] How did the board decide on this price? It was the closing price of Tesla on the date the board approved the grant. This way of setting the exercise price is standard practice in executive compensation. For the CEO to benefit from the option grant, the stock price had to rise from when it was granted, which is exactly what shareholders want. Indeed, this is the purpose of providing option compensation to the CEO.

2.1.4. The CEO exercises the options

For the CEO to benefit, first he has to exercise the options. That is, he has to pay the exercise price of $23.34 to purchase Tesla shares. The total cost would be 303,960,630 × $23.34= $7.09 billion. Thus, while the shares would be worth $56 billion, he would have to pay $7 billion to acquire these shares. The net value to the CEO, therefore, would be $49 billion (= 56 – 7) from the option grants. This is why we term the $56 billion the "Current estimate of CEO rewards (excluding exercise cost).

2.1.5. Options have been earned

These options that were granted in 2018 were not outright grants that simply rewarded the CEO regardless of performance. Rather, the CEO had to *earn* the option awards, the magnitude of which depended on Tesla's performance. The CEO earned the maximum possible 303,960,630 options.

[5] See Page 62 of the 2019 proxy statement under the table titled "Grants of Plan-Based Awards in 2018". The exercise price is $350.02, which was the closing price as of 3/21/2018, the date the grant was approved by the board. Since that date, Tesla has two stock splits—5:1 in 2020 and 3:1 in 2022. That means, if you owned 1 share in 2018, you now own 15 shares. Thus, the exercise price is accordingly adjusted to be 350.02/15 = $23.34.

2.1.6. Tesla's stock performance and operational performance targets

What performance did Tesla have to achieve for the CEO to earn this option award? There were a combined 24 targets involving stock performance and operational performance measures that had to be met for the CEO to earn these awards. Stock performance is given by Market capitalization, which equals stock price times the number of shares outstanding. Operational performance measures used are Total Revenues and Adjusted EBITDA, where EBITDA is **E**arnings **B**efore **I**nterest **T**axes, **D**epreciation and **A**mortization. We explain in greater detail below (in Section 3.6) but it is sufficient at this point to say that targets for market capitalization, Total Revenues, and Adjusted EBITDA that had to be met to earn the awards were 13x, 15x, and 22x the corresponding numbers at the time of the grant. Clearly, these were extremely difficult to achieve in order for the CEO to earn the option award.

2.1.7. Compensation contract was intended for 10 years

These performance-based option grants were authorized in Jan 2018. The CEO has not been paid since. Prior to 2018, he was not paid anything for 5 years. The CEO had 10 years to achieve the targets specified in the 2018 contract, but Tesla achieved them in 6 years.

2.2. Firm's estimate of CEO rewards

In its 2018 proxy, the firm provided an estimate of the "the maximum theoretical value…that could be realized by" the CEO from the compensation award.[6] We term this the "Firm's estimate of CEO rewards."

Estimating the rewards to the CEO requires making assumptions. As described above, the CEO would have earned the option award only if the market capitalization went up. Thus, the first assumption is regarding market capitalization. We know that market capitalization can go up simply

[6] https://www.sec.gov/Archives/edgar/data/1318605/000119312518035345/d524719ddef14a.htm

from issuance of capital; this could be due to capital raised from new investors, stock awards to employees, exercise of option awards by employees, and conversion of existing convertible notes and warrants. The firm assumed dilution only from "potential exercises or conversions from the existing employee equity pool and the outstanding convertible notes and warrants" as of the time of the grant. It did not forecast future dilution from raising capital or from M&A or from the CEO exercising the options.

The second assumption concerns the timing of the CEO's exercise of the option awards if he were to earn them. As we explain in detail later in Section 3.6, the CEO would be able to earn $1/12^{th}$ of the award (a "tranche") every time the market capitalization and an operational benchmark hit set targets. The firm assumed that the CEO would not exercise as soon as he earned a given tranche. Instead, the firm assumed that the CEO would wait to earn the entire award before exercising.

Based on the above 2 assumptions, the firm estimated the total reward to be $55.8 billion. Note that this number does not take into account the probability of the CEO earning these rewards. This is one of the estimates of the maximum rewards that the CEO could earn. See Section 4.3 for other estimates.

3. Details of the $2.3 billion award made in 2018

Several features of the 2018 pay package are not run-of-the-mill contractual features.

3.1. Award is worth more than typical because it is a 10-year award rather than an annual award

Most firms give annual awards. In contrast, Tesla's 2018 package was designed to provide incentives to the CEO over the subsequent 10 years. Further, Tesla's CEO had to achieve the performance targets within 10 years of the grant date to earn the option awards. Other than this

award, the CEO has received no compensation either since 2018 or in the 5-year period prior to 2018.[7] The previous grant was made in 2012, which we will discuss in more detail later.

One could make an approximation of the annual value of the grant by simply dividing the $2.3 billion by 10 to arrive at $230 million.

3.2. Option awards rather than stock awards and hence could have ended worthless

The awards granted in 2018 were options rather than shares. What's the difference? Both option and stock awards provide incentives to the CEO to increase stock price because the CEO's future rewards increase as stock price increases. But there is a big difference in terms of how the CEO benefits. For the CEO to benefit from the option award, the stock price had to rise from when it was granted, which is exactly what shareholders want. If the CEO does a poor job and the stock price does not appreciate from the grant-day price within the lifespan of the option (typically 10 years from the grant), the award will be completely worthless to the CEO even though the firm values the awards at $2.3 billion. This is because, as explained earlier, the CEO has the option to purchase Tesla shares at a fixed price of $23.34 (the grant-day stock price) and if the stock price falls below this price, it makes no sense for the CEO to buy the stock at $23.34 because the CEO could buy it at a lower price in the open market. In the case of stock awards, however, the CEO will benefit as long as the firm does not become bankrupt (and the stock price goes to zero). For example, if the stock price falls 1% below the exercise price, the value of the stock award to the CEO will fall by just 1%, but the option award will become worthless. Thus, all else equal, option awards give extra motivation for the CEO to improve stock performance.

Over the 2007–2023 period (we pick 2007 because of the FAS123R regulation in 2006, which affected how option compensation was accounted for), 10.3% of the CEOs of S&P 1500 firms had

[7] As per the proxy filing, the CEO had to be offered the minimum wage as per California law that he refused to accept.

only option awards and no stock awards as part of their annual pay package.

3.3. Performance-contingent awards rather than automatic awards for simply remaining in office

The option grants were not time-vesting awards but performance-vesting awards. Time-vesting awards are those that are granted on a given date but get vested at a future date. The executive gains ownership of the awards only after the awards vest. The executive will then be able to exercise the options and then sell the shares obtained from exercise in the open market to cash out.

The typical time-vesting grant is a 3-year award with 1/3rd of the amount vesting each year. The quantity and timing of the award is determined at the time of the grant. For example, if a 3-year time-vesting grant of 300,000 shares is made to a CEO on Jun 30th, 2020, the CEO typically, will have full ownership of 100,000 shares on June 30th, 2021; another 100,000 shares on June 30th, 2022; and the remaining 100,000 shares on June 30th, 2023. With time-vesting grants, as long as the CEO remains in office, the CEO receives the award without regard to firm performance. If the stock price goes down 50% in the 3 years since the grant date, the CEO will still pocket the 300,000 shares. The purpose is to provide incentives for the executives to stay with the firm because the shares that are not vested will be forfeited if the CEO leaves the firm to join another organization.

In the case of Tesla, the entire pay package offered in 2018 comprised of performance-vesting awards. Performance-vesting awards, similar to time-vesting awards, are granted on a given date, but the shares are not vested automatically over time. Instead, the shares have to be "earned" by the CEO by improving either operating performance, financial performance, or both. The performance metrics are clearly laid out by the firm.

Over the 2007–2023 period, about half (52.6%) of the CEOs of S&P 1500 firms had performance-vesting awards granted as part of their annual pay package. Firms report both the stock and option awards in a combined manner in the "plan-based awards" table in the proxy statement and

we cannot separate out the option awards from the stock awards. The "outstanding awards" table in the proxy statement, however, gives a breakup of all outstanding awards (including awards granted in prior years) that the executive holds at the end of each year. Using this, we estimate that only 4.2% of the outstanding performance-vesting awards are pure option awards.

On the surface, awarding the CEOs shares and/or options conditional on the firm's performance is very good. But there are some key questions to consider. (i) Are the financial measures built into the design of the contract reasonably hard to achieve? For example, in 2023 Apple gave the CEO performance-vesting stock awards, but achieving the target needed to earn the awards was relatively easy. The 2024 proxy of Apple indicates (pg. 58) that "to earn the target number of performance-based RSUs, Apple must achieve above-median performance at the 55th percentile of the S&P 500." (ii) Are the operational measures related ultimately to shareholder value? If the answers to (i) and (ii) are "yes", then the CEO benefits only when shareholders do. (iii) Are the measures easy to manipulate? We address these issues in our discussion below.

3.4. Performance measures to earn the option awards are related to the health of the firm

Appendix 2.A provides details from the 2019 proxy statement of the performance targets that need to be met for the CEO to earn the option grants. The three performance measures are (i) total revenue, (ii) adjusted EBITDA, and (iii) market capitalization of the firm. Are these measures related to the financial health of the firm?

3.4.1. Total revenue

Total revenue is a measure of growth, and this is a reasonable proxy used by other high-growth firms like Tesla. Tesla's success depended on the introduction, manufacture, and ultimately selling of newer car models and, thus, total revenue seems reasonable.

3.4.2. Adjusted EBITDA

EBITDA is a measure of profitability. Most firms make some sort of adjustment to EBITDA that reflects firm-specific and industry-specific factors. As per the definition given in the 2019 proxy, the adjustment to EBITDA is to add back stock-based compensation.[8] Adjusted EBITDA is pre-executive-compensation profitability, which is a better reflection of product profitability that does not vary year to year depending on when executives are given stock and option grants. This is especially relevant for Tesla, which gives grants once every few years instead of annually.

Adjusted EBITDA is a good counterbalance to having total revenue as a performance measure. Thus, if Tesla focuses on growth by discounting the price of its cars, the profitability threshold will not be met, and the CEO will not be able to earn the option grants. By the same token, profitability by itself is not a good metric as the firm can achieve this at the expense of revenue by increasing the price of cars and thus reducing demand and selling fewer cars.

3.4.3. Market capitalization

Market capitalization is the total value of the firm's outstanding shares. Shareholders benefit from their investment in Tesla and, therefore, care about the stock price going up; therefore, market capitalization is an excellent benchmark. Ultimately, if the stock market does not recognize growth and profitability and reward the firm with higher market capitalization, then the firm will be forced to adjust its strategy to ensure that the stock price goes up.

3.5. Performance measures to earn the option awards are not easy to manipulate

First, market capitalization is not easy to manipulate, but that too a manipulation of nearly

[8] From the 2019 proxy: "Adjusted EBITDA" means (i) net income (loss) attributable to common stockholders before (ii) interest expense, (iii) (benefit) provision for income taxes, (iv) depreciation and amortization, and (v) stock-based compensation, as each such item is reported in Tesla's financial statements on Forms 10-Q or 10-K filed with the SEC for the previous four consecutive fiscal quarters.

1200%—the performance needed to earn the full award—is close to impossible. We elaborate later on the 1200% mentioned here.

Second, total revenue is not easy to manipulate either. The firm could bring forward revenue a quarter or two, but that will affect the probability of the next set of benchmarks being achieved when this accounting sleight-of-hand is reversed.

Third, adjusted EBITDA is EBITDA adjusted solely for stock compensation. Thus, this number is not easy to manipulate either.

Importantly, the CEO has to hold his shares acquired from exercise of the earned options for 5 years before he can cash in (see later Section 3.3.9). Thus, any manipulation of market capitalization, total revenue, and adjusted EBITDA that could have been done to earn the performance grant would have been detected by the market and unwound in the 5 years that the CEO has to hold the shares before cashing out. Indeed, a NYT article written at the time of the grant echoes the same sentiment: "*And it's impossible for him to manipulate the system by trying to prop up the stock price for a temporary period. Under the terms of the arrangement, even once his shares vest, he has to hold them an additional five years before he is allowed to sell them.*" [9]

Moreover, as per the terms of the pay package (see Appendix 2.B), if manipulation is found out and accounting statements are restated, the CEO will forfeit the awards earned due to inflated performance measures.

In short, these benchmarks are almost manipulation proof and there are strong incentives for the firm not to manipulate the performance measure to tilt the scales to favor the CEO.

[9] https://www.nytimes.com/2018/01/23/business/dealbook/tesla-elon-musk-pay.html

3.6. Performance targets that needed to be met to earn the option awards were extraordinarily difficult

Please see Appendix 2.C for details of the performance targets that need to be met for the CEO to earn the awards. In a nutshell, the CEO would earn 1/12 of the award every time the next market capitalization benchmark is achieved ***and*** the next operational performance measure—either total revenue or adjusted EBITDA—is achieved. Earning the entirety of the award would have required extraordinary performance from Tesla. See Appendix 2.D for the company's philosophy behind setting these performance benchmarks.

3.6.1. Market Capitalization to grow by approximately 1200%

The first tranche of $1/12^{th}$ would be earned when the market capitalization reaches $100 billion. To earn the second tranche of another $1/12^{th}$, the firm needed to add another $50 billion in market capitalization to reach $150 billion. This $50 billion was apparently chosen by the firm to reward the CEO every time he increased the market capitalization by an amount equal to that of Ford and GM at that time. The final $1/12^{th}$ of the award required the market capitalization to reach $650 billion.

As per the proxy, "each of the 12 market capitalization milestones requires that Tesla add an amount in market capitalization nearly equal to the total market capitalization of Tesla at the time of the grant". This implies a number closer to $50 billion for the market capitalization at the time of the grant, which seems correct. [10] The table below presents the returns that Tesla's shareholders should earn for the CEO to meet each of the market capitalization benchmarks assuming $50 billion as the market capitalization at the time of the grant.

[10] As per our calculation, using data from CRSP:

	Shares outstanding	Share price	Market Capitalization
3/21/2018: Grant date	168,920,000	$316.53	$53 billion
1/19/2018: Board approval date	168,797,000	$350.02	$59 billion

Milestone	Market Capitalization Benchmark ($ billion)	Stock Return needed to meet Benchmark
1	$100	100%
2	$150	200%
3	$200	300%
4	$250	400%
5	$300	500%
6	$350	600%
7	$400	700%
8	$450	800%
9	$500	900%
10	$550	1000%
11	$600	1100%
12	$650	1200%

Thus, assuming Telsa doesn't raise capital by issuing shares to outside investors or employees (this is not an issue—see Appendix 3 for details), Tesla's return has to be approximately 1200% for the CEO to earn the full award.

One way to think of the difficulty of achieving the target is to look at the market capitalization of other US-based car companies—GM and Ford—as of the grant announcement date. Using CRSP data, GM's market capitalization was $53 billion and Ford's market capitalization was $43 billion, both roughly in line with Tesla's market capitalization of $50 billion. Thus, taking the firm from $50 billion to $650 billion to earn the award would have made Tesla extremely large compared to its peers even though it was a relatively new car company compared to well-established icons like GM and Ford.

Another perspective of the difficulty of the target can be seen from the fact that as of the grant date, reaching $650 billion would have made Tesla the #3 ranked firm in terms of market capitalization, a move up from #96. As of Dec 29, 2023, it was ranked #7.

3.6.2. Total Revenue to grow by approximately 1400%

Tesla's total revenue for 2017—the last full year for which data was available prior to the 2018 grant—is $11,758,751,000 (the proxy had rounded this up to $11.8 billion). Tesla's highest total

revenue benchmark is $175 billion. That's a factor of 15, consistent with what the proxy says.[11]

Milestone	Total Revenue Benchmark ($ billion)	Total Revenue Increase needed to meet Benchmark
1	$20	70%
2	$35	198%
3	$55	368%
4	$75	538%
5	$100	750%
6	$125	963%
7	$150	1176%
8	$175	1388%

3.6.3. Adjusted EBITDA to grow by approximately 2100%

We estimate Tesla's adjusted EBITDA for 2017 to be $644,168,000. See Appendix 4 for details. Tesla's highest adjusted EBITDA benchmark is $14 billion. That's a factor of 21.7 and the proxy says 22.[12]

Milestone	Adjusted EBITDA Benchmark ($ billion)	Adjusted EBITDA Increase needed to meet Benchmark
1	$1.5	133%
2	$3.0	366%
3	$4.5	599%
4	$6.0	831%
5	$8.0	1142%
6	$10.0	1452%
7	$12.0	1763%
8	$14.0	2073%

3.7. Performance targets that Tesla had to meet were met by only 1.2% of our sample

To earn one tranche of the award, Tesla must achieve one of the market capitalization

[11] The proxy notes that "Achieving all of the revenue-based operational milestones…would require increases by factors of 15…from the applicable 2017 levels."
[12] The proxy notes that "Achieving…all of the Adjusted EBITDA-based operational milestones would require increases by factors of…22…from the applicable 2017 levels."

benchmarks and one of the operational benchmarks. To earn all 12 tranches, Tesla must meet the 12 market capitalization benchmarks and 12 of 16 possible operational benchmarks. As seen above, the 16 operational benchmarks correspond to 8 Total Revenue benchmarks and 8 Adjusted EBIDTA benchmarks. Therefore, to meet the 12 operational benchmarks to earn the full award, the CEO could meet one of the following five combinations of Total Revenue and Adjusted EBITDA benchmarks.

Combination needed to earn full award	**Market capitalization growth**	**Total Revenue growth**	**Adjusted EBIDTA growth**
8 Total Revenue + 4 Adjusted EBITDA benchmarks	1200%	1388%	831%
7 Total Revenue + 5 Adjusted EBITDA benchmarks	1200%	1176%	1142%
6 Total Revenue + 6 Adjusted EBITDA benchmarks	1200%	963%	1452%
5 Total Revenue + 7 Adjusted EBITDA benchmarks	1200%	750%	1763%
4 Total Revenue + 8 Adjusted EBITDA benchmarks	1200%	538%	2073%

Consider, for example, the first combination above: 8 Total Revenue benchmarks + 4 Adjusted EBITDA benchmarks. To meet this combination and earn all 12 tranches, market capitalization must grow by 1200% and Total Revenue must grow by 1388% and Adjusted EBITDA must grow by 831%. Clearly, this is not an easy target by any means; neither are the other four combinations shown above.

The consultant (Aon Hewitt Radford) estimated the probability of the firm reaching the 6th milestone of market capitalization of $350 billion to be under 10%. They mention that the probability "rapidly declined below 10% from [market capitalization] milestone 6 onwards." To arrive at this number, they did not consider the operational benchmarks that needed to be met.

To quantify the difficulty of achieving the full award, we don't forecast the probability (as done by Aon), but rather look backwards to estimate what fraction of the U.S. firm-years (i.e., each firm in each year of existence is considered as one observation) had historically achieved the targets needed for the Tesla CEO to earn the entirety of the award. We discuss our methodology in Appendix 5.

We find that only 6.4% of the 243,366 firm-years in our sample from 1950–2017 achieved the 1200% growth in market capitalization that was required to earn all 12 tranches. When we combine that with the Total Revenue and Adjusted EBITDA benchmarks that were also required to be met, only 1.2% of the firm-years achieved this target.

A NY Times article written at the time of the grant validates the difficulty of achieving the targets: *"As executive compensation plans go, Tesla's is about as friendly to shareholders as they come….Mr. Musk will be paid only if he reaches a series of jaw-dropping milestones….[i]f Mr. Musk were somehow to increase the value of Tesla to $650 billion [from $50 billon]—a figure many experts would contend is laughably impossible….Mr. Musk's critics…contend that the new compensation plan is just the company's latest publicity stunt."*[13]

3.8. Awards equal 12% of outstanding shares

The CEO is awarded options that allow him to purchase 1% of shares outstanding at the time of the grant every time he achieves one of the market capitalization and one of the operational benchmarks. Thus, if he earns all 12 tranches, he will have awards equal to 12% of the outstanding shares of Tesla. As discussed earlier, the minimum benchmark the Tesla CEO has to meet is to increase the market capitalization by 1200%.

3.9. The CEO cannot cash out immediately after vesting but must continue to hold shares from the exercise of earned options for 5 years

As per the terms of the pay package, with limited exceptions, the CEO "must hold any shares that he acquires upon exercise of the 2018 CEO Performance Award for at least five years."[14] That is, not only does the CEO have to earn the awards by improving Tesla's performance significantly, the CEO also cannot cash out once the options have been exercised. Imposing a further 5-year holding

[13] https://www.nytimes.com/2018/01/23/business/dealbook/tesla-elon-musk-pay.html

[14] See the bottom of page 53 of the 2019 proxy.

period implies that the CEO would lose if Tesla's stock price drops. That is, the earned awards continue to provide incentives for the CEO to behave in the best interests of the shareholders for at least 5 years afterward.

As of the 2024 proxy filing, even though the CEO has earned $4/12^{th}$ of the option grant in 2020, $3/12^{th}$ of the grant in 2021, $4/12^{th}$ of the grant in 2022, and the final $1/12^{th}$ in 2023, he has chosen not to exercise the options even though it is highly profitable to do so. As noted above, even after the CEO exercises the options, he will have to hold it for an additional 5 years as per the terms of the award.

3.10. The parallel between the 2018 grant and the 2012 grant

Appendix 6 presents details of 2012 pay package as reported in the 2013 proxy. The parallels with the 2018 grant are similar implying Tesla's compensation philosophy has not changed. (i) It was meant to be a 10-year award ("*This grant is intended to compensate… [the CEO]… over its ten-year term*"). (ii) They were option awards rather than stock awards and, hence, could have ended worthless. (iii) They were performance-contingent awards rather than automatic awards for simply remaining in office. (iv) Performance measures to earn the option awards were related to the financial health of the firm (though not the same as that included in the 2018 package). (v) Performance measures to reach to earn the option awards were not easy to manipulate. (vi) The market capitalization performance targets that needed to be met to earn the option awards were difficult to achieve.[15] The difficulty of the operation performance targets in the 2012 award, however, is hard to assess objectively.

[15] In 2011, the year prior to setting the 2012 package, Tesla was a very young car company, which had sold only about 700 Roadsters. Its market capitalization as of the grant date of the 2012 award was about $3.2 billion. To achieve the implied performance milestones, its market capitalization needed to become bigger than that of Ford ($35 billion) and GM ($32 billion).

4. Three dimensions of a pay package

Finally, we take a step back from examining Tesla's 2018 award to its CEO to take a high-level view of CEO compensation, in general. In Section 1, we have already discussed the cost of the CEO package to the firm. There are, however, other dimensions to the pay package. Such multi-dimensional features of pay arise because, unlike lower-level employees who are paid a cash salary with no bonus, top executives' pay package is structured in such a way as to not only reward past performance but also incentivize future performance. The need to incentivize CEOs to improve future performance results in them being paid primarily in the form of shares and options, thus aligning their interests with those of shareholders.

In addition to the cost to the firm, there are two other dimensions of the pay package: (i) *ex-ante* CEO incentives embedded in the pay package *before* CEOs make decisions to improve stock performance; and (ii) *ex-post* rewards that CEOs earn *after* they make decisions in response to these incentives (and after the share price reflects these decisions).

We expand on these 3 elements below.

4.1. Cost of CEO pay to the firm

From the firm's perspective, the compensation paid to the CEO is part of the cost of doing business and it is to be expensed along with other labor costs and capital costs. There are clearly-laid-out accounting standards that dictate the fair value of the stock award. As stated in Section 1, this number was $2.3 billion for Tesla.

When people talk about CEO pay, this is the number that they have in mind. It might be tempting to compare these numbers across CEOs to identify highly paid executives. And the media regularly does this, sometimes, to publicly call out the CEOs.[16] But this is inappropriate. Academic

[16] https://www.reuters.com/business/elon-musk-tops-list-largest-us-corporate-pay-packages-2024-01-30/

research documents many factors that determine the cost of the CEO's pay package to the firm. These factors include the size of the firm, the growth opportunities facing the firm, volatility of the firm, etc. Thus, if we want to compare CEO pay, at the minimum, we need to control for these factors. Only after that, is it possible for one to comment on whether a CEO's pay package is excessive or not.

The purpose of paying CEOs is two-fold: incentivize the CEO for future performance and reward the CEO for past performance. Thus, pay from the CEO's viewpoint has two elements: *ex-ante* incentives and *ex-post* rewards.

4.2. Ex-ante CEO incentives

Pay for performance incentives arise when the compensation is structured such that when the stock price goes up—thereby benefiting shareholders—the CEO's pay also goes up. This is typically accomplished by granting stocks or options or both (be it time-vesting or performance-vesting).

Salary is fixed at the beginning of the year and does not change with performance. The bonus component is typically small compared to the total pay and is typically related to short-term operational performance measures, so we ignore that for the time being. Therefore, the big incentives come from stock and option awards. But incentives don't arise only from the stock and option awards made that year, but also those made in prior years.

There are three reasons why prior awards matter.

First, the CEO might have prior share and option awards that have not yet vested and these will lose value if the stock price goes down.

Second, the compensation contract might require the CEO to hold the shares and options for a set number of years after they vest (as is the case with Tesla). The CEO is forced to hold the shares precisely to give incentives to the CEO to continue to improve firm performance.

Third, even if there are no restrictions to cashing out, some CEOs choose not to cash out of the vested shares and options. These also provide incentives to the CEO.

Fourth, there are implicit restrictions that apply. For example, the profits from selling shares obtained by exercising options are eligible for the lower long-term capital gains tax rate instead of the higher short-term capital gains tax rate. Thus, the CEO has an incentive to delay cashing out in order to take advantage of the tax rates.

Here, we will only consider the incentives from the 2018 award (and not those from the 2012 award). The 2018 contract was structured such that if Tesla delivered approximately 1200% return from the time of the grant (and achieved other operational performance benchmarks), the CEO would get options underlying 12% of the shares outstanding as of the time of the grant. Thus, for every $1 increase in shareholder wealth, the CEO's wealth increased approximately by $0.12. This "delta" (a measure of how closely aligned CEO wealth is to firm value) of 0.12 is high, but not crazy high. The 90th-percentile "delta" for CEOs of large US corporations over 1996–2009 was 0.07, and this has only gotten larger in recent years. The high delta appears to have done what it was meant to do—achieve "jaw-dropping" performance (to quote the NYT article).

As with CEO pay, it is inappropriate to compare incentives across CEOs. A high number is not always optimal. A low number is also not always optimal. Academic research has documented a number of factors that should dictate the level of incentives to be provided to the CEO. These factors include the size of the firm, the growth opportunities facing the firm, volatility of the firm, etc. Thus, we could compare the incentives once we control for these factors.

4.3. Ex-post CEO rewards

In Section 2, we presented two estimates of the potential rewards to the CEO, each having its own set of assumptions about market capitalization and the timing of the CEO's option exercise. Here, we present two more estimates.

First, we estimate the value of the awards received by the CEO assuming (i) he met all the performance benchmarks, (ii) he was allowed to cash out immediately after the award was *fully* earned

and (iii) there was *no* issuance of capital from any of the sources discussed in Section 2.2. In such cases, the increase in market capitalization is solely due to the increase in stock price. The market capitalization of the firm on the day of the award was $59 billion (see footnote 9). To earn the full award, the market capitalization had to rise to $650 billion (and other operational performance benchmarks had to be met; see Section 3.6). Thus, the stock price had to increase from split-adjusted price of $23.34 to $257.14 (=650/59×23.34). This assumes that the firm did not raise capital so as to increase the market capitalization. Tesla did issue new shares, but the amount was trivial compared to the benchmark ($16 billion; see Appendix 3). The CEO earned 303,960,630 options. To exercise these options, the CEO would have to pay 303,960,630×23.34 = $7.09 billion. The CEO could then sell the shares at $257.14, which would yield 303,960,630×257.14 = $78.16 billion. Net, the CEO would have made $78.16 billion minus $7.09 billion = $71.06 billion.

Second, we repeat the above analysis, but now assume that the CEO exercises the options one tranche at a time as soon as he earns them. Thus, to earn the first tranche of $1/12^{th}$ of 303,960,630 = 25,330,053 options, the stock price must appreciate to $39.56 (=100/59×23.34) from $23.34. The net reward after paying the exercise price will be 25,330,053×(39.56–23.34)=$410 million. We similarly estimate the rewards from earning the second tranche, third tranche etc. We sum up the rewards from all 12 tranches. We estimate the total rewards to be $38 billion.

As discussed earlier, we can compare the cost to the firm (or the CEO pay number) and the ex-ante incentives across CEOs if we appropriately control for firm-specific factors such as firm size, growth opportunities, firm risk etc. But with the ex-post rewards, such comparison is virtually impossible due to several difficult-to-resolve issues. We highlight a few. (i) Some awards are not contingent on performance while others are. Thus, the rewards from performance-contingent awards are not comparable with time-vesting awards. (ii) Even within performance-vesting awards, it is not easy to compare rewards because the performance benchmarks vary in difficulty. For example, for a

consumer staple firm (say, General Mills), a high growth rate is not expected, whereas for a firm in AI (say, OpenAI), high growth is expected. Thus, while 10% growth for a firm like General Mills might be a stiff benchmark, even 50% growth is an easy hurdle to cross for a firm like Open AI. (iii) The benchmarks chosen by firms could vary. For example, two firms even within the same industry, could choose different benchmarks; one could choose revenue, while another could choose free cash flow. It then becomes hard to estimate the difficulty of achieving the benchmarks. (iv) One CEO could hold on to the shares even when there are no restrictions imposed by the firm in which case these ex-post rewards goes up and down with stock price, while another might cash out right away.

Overall, it becomes virtually impossible to compare ex-post rewards.

4.4. $56 billion has little economic meaning

Our discussion in this section clearly highlights the fact that the most widely reported $56 billion number is not related in any way to the cost to the firm of paying the CEO or the CEO incentives embedded in the pay contract. These are the only two dimensions that can be compared across CEOs.

The $56 billion is just one possible estimate of the maximum theoretical reward that the CEO could have earned from the pay package.

How best to reconcile the $2.3 billion number with $56 billion? One way to think about this is that the firm awarded the CEO a $2.3 billion lottery ticket, with a potential payoff of $56 billion, but with a big difference; the probability of winning the lottery was based not on luck, but rather on the CEO's ability to transform an upstart car company into a global giant.

5. Conclusions

Tesla's compensation package has achieved some level of notoriety recently, with the most widely touted number being $56 billion. But this package is not something that was granted recently,

but rather granted in 2018 and approved by 73% of shareholders at that time. The award was fully earned by the CEO by 2023 after meeting stringent performance benchmarks—benchmarks that have historically been achieved by only 1.2% of the observations in our sample. A lawsuit from a plaintiff, who held 9 shares of Tesla, claimed breach of fiduciary duty by the board in overpaying the CEO. In response, on January 30, 2024, the Delaware Chancery Court struck down the CEO's award made nearly 6 years earlier citing poor process and conflicts of interest. Tesla responded by taking the issue back to shareholders and, on June 13, 2024, 72% of shareholders voted to ratify the award. We interpret the positive shareholder vote as indicating that shareholders are happy with the compensation package.

As any compensation researcher will point out, no CEO in history has been paid anywhere close to even a billion dollars, let alone $56 billion. Consequently, we perform a careful analysis of Tesla's compensation contract to gain insight into this number.

We find that the $56 billion has no economic meaning in terms of the cost of the CEO pay package to the firm or the *ex-ante* incentives to the CEO. It is loosely related to the *ex-post* rewards to the CEO from improving firm performance in response to the incentives, but the *ex-post* rewards are not comparable across CEOs.

We also find that the design is consistent with good compensation contracting principles. First, the cost to the company was $2.3 billion, not $56 billion. The award was meant to provide incentives over a ten-year period and was not meant as an annual award. The CEO has not received any other stock or option awards since this grant. Thus, the average annual compensation could be thought of as $230 million. Second, it was an option award, not a stock award and as such could have ended up worthless if the stock price did not go up after the grant. It is clear that the CEO won only if the shareholders won.

Third, it was risky compensation because it was a performance-based option award, which

would be earned only if the CEO met certain performance measures. These measures (market capitalization, total revenue, adjusted EBITDA) were objectively verifiable, related to shareholder wealth and hard to manipulate. The specified targets for these benchmarks were also difficult to achieve. Fourth, the CEO had to hold the shares obtained from the exercise of earned options for a further five-year period, which served a dual role. It made any manipulation of performance targets even less likely while also providing incentives to the CEO to improve Tesla's performance for the next five years. Overall, there is very little to quibble about in terms of the features of the contract, except for the size of the award. Whether the firm should have given away 12% of the firm to achieve this near-improbable growth is a fair question, but one with no easy answers.

We have seen many bankruptcies in the EV space in recent years. There are no new car companies other than Tesla that have come into existence in the last few decades that have also thrived. As a point of comparison, both GM and Ford have about the same market capitalization in 2024 as they did in 2018, in sharp contrast to Tesla's stunning growth over the same period. It appears that the pay package accomplished its goal of providing appropriate incentives to the CEO.

In closing, we leave you with two questions to consider: will you give a CEO 12% of the outstanding shares if the stock returns 1200%? For Tesla shareholders, the answer was "Yes!" Would you be willing to accept a pay package similar to that given to the Tesla CEO—$0 in pay for 10 years if you don't improve the performance of the firm you're working for? For almost all of us, the answer would be "No way!" But Tesla's CEO accepted the offer. He bet on himself and he succeeded!

Appendix 1: Data Used

- All proxy filings: https://ir.tesla.com/sec-filings#groups=proxyfilings&list_id=tcl-list-1&page=0
- 2013 proxy (for 2012 award): https://www.sec.gov/Archives/edgar/data//1318605/000119312513158904/d506419ddef14a.htm
- 2018 Proxy (for Performance stock option award agreement): https://www.sec.gov/Archives/edgar/data/1318605/000119312518035345/d524719ddef14a.htm
- 2019 proxy (gives details on the 2018 pay package that is at the heart of the lawsuit): https://www.sec.gov/Archives/edgar/data//1318605/000156459019014268/tsla-def14a_20190611.htm
- 2020 proxy: https://www.sec.gov/Archives/edgar/data//1318605/000156459020027321/tsla-def14a_20200707.htm
- 2021 proxy: https://www.sec.gov/Archives/edgar/data/1318605/000156459021045926/tsla-def14a_20210826.htm
- 2022 proxy: https://www.sec.gov/Archives/edgar/data/1318605/000156459022024064/tsla-def14a_20220804.htm
- 2023 proxy: https://www.sec.gov/Archives/edgar/data/1318605/000119312523094075/d451342ddef14a.htm
- 2024 proxy: https://www.sec.gov/Archives/edgar/data/1318605/000110465924053333/tm2326076d15_def14a.htm

Appendix 2: 2018 pay package as given in the 2019 proxy

A. Performance targets that need to be met for the CEO to earn the option grants

The following is from footnote 2 from page 62 of the proxy:

Reflects the 2018 CEO Performance Award, which is intended to compensate Mr. Musk over its 10-year maximum term and will become vested as to all shares subject to it only if our market capitalization increases to $650.0 billion and 12 of 16 total operational milestones are achieved during such 10-year period. Each tranche of 1/12th of the total number of shares subject to the option will become vested and exercisable each time: (i) our market capitalization increases initially to $100.0 billion for the first tranche, and by an additional $50.0 billion for each tranche thereafter; and (ii) one

of 16 specified operational milestones relating to total revenue or adjusted EBITDA (other than an operating milestone that previously counted towards the vesting of another tranche) is attained, subject to Mr. Musk's continued service to us as either CEO or as both Executive Chairman and Chief Product Officer, with the CEO reporting to him, at each such vesting event. This award was designed to be entirely an incentive for future performance that would take many years, if at all, to be achieved. Further, each of the requirements underlying the performance milestones was selected to be very difficult to achieve. If any options have not vested by the end of the term of the option award, they will be forfeited and Mr. Musk will not realize the value of such options. As of the date of this filing, zero market capitalization milestones have been achieved and two operational milestones have been achieved (subject to Board certification) and consequently, no shares have vested under the 2018 CEO Performance Award. Following vesting, the actual receipt of any shares by Mr. Musk will further be subject to his payment of the exercise price of $350.02 per share. See "*Executive Compensation—Compensation Discussion and Analysis—Chief Executive Officer Compensation—2018 CEO Performance Award*" and "*Executive Compensation—Compensation Discussion and Analysis—Chief Executive Officer Compensation—Realized Compensation*" above.

B. Forfeiture clause

The following is from page 54 of the 2019 proxy:

In the event of a restatement of Tesla's financial statements previously filed with the SEC, if a lesser portion of the 2018 CEO Performance Award would have vested based on the restated financial results, then Tesla will require forfeiture (or repayment, as applicable) of the portion of the 2018 CEO Performance Award that would not have vested based on the restated financial results (less any amounts Mr. Musk may have paid to Tesla in exercising any forfeited awards). The 2018 CEO Performance Award also will be subject, if more stringent than the foregoing, to any current or future

Tesla clawback policy applicable to equity awards, provided that the policy does not discriminate solely against Mr. Musk except as required by applicable law.

C. 2018 CEO Performance Award

The following is from pages 52–53 of the proxy:

The 2018 CEO Performance Award is comprised of a 10-year maximum term stock option to purchase 20,264,042 shares of Tesla's common stock, divided equally among 12 separate tranches that are each equivalent to 1% of the issued and outstanding shares of Tesla's common stock at the time of grant, at an exercise price of $350.02 per share. Each of the 12 vesting tranches of the 2018 CEO Performance Award will vest upon certification by the Board that both (i) the market capitalization milestone for such tranche, which begins at $100 billion for the first tranche and increases by increments of $50 billion thereafter, and (ii) any one of the following 8 operational milestones focused on revenue or 8 operational milestones focused on profitability, have been met:

Total Revenue* ($ billion)	**Adjusted EBITDA** ($ billion)**
$20.0	$1.5
$35.0	$3.0
$55.0	$4.5
$75.0	$6.0
$100.0	$8.0
$125.0	$10.0
$150.0	$12.0
$175.0	$14.0

* "Revenue" means total revenues as reported in Tesla's financial statements on Forms 10-Q or 10-K filed with the SEC for the previous four consecutive fiscal quarters.

** "Adjusted EBITDA" means (i) net income (loss) attributable to common stockholders before (ii) interest expense, (iii) (benefit) provision for income taxes, (iv) depreciation and amortization, and (v) stock-based compensation, as each such item is reported in Tesla's financial statements on Forms 10-Q or 10-K filed with the SEC for the previous four consecutive fiscal quarters.

Any single operational milestone may only satisfy the vesting requirement of one tranche, together with the corresponding market capitalization milestone. Subject to any applicable clawback provisions, policies or other forfeiture terms, once a milestone is achieved, it is forever deemed achieved for determining the vesting of a tranche. Meeting more than 12 of the 16 operational milestones will not result in any additional vesting or other compensation to Mr. Musk under the 2018 CEO Performance Award. Except in a change in control situation, measurement of the market capitalization milestones will be based on both (i) a six calendar month trailing average of Tesla's stock price as well as (ii) a 30 calendar day trailing average of Tesla's stock price, in each case based on trading days only. Upon the consummation of certain acquisitions or split-up, spin-off or divestiture transactions, each then-unachieved market capitalization milestone and/or operational milestone will be adjusted to offset the impact of such transactions to the extent they could be considered material to the achievement of those milestones.

In establishing the Revenue and Adjusted EBITDA milestones, the Board carefully considered a variety of factors, including Tesla's growth trajectory and internal growth plans and the historical performance of other high-growth and high-multiples companies in the technology space that have invested in new businesses and tangible assets. These benchmarks provided revenue/EBITDA to market capitalization multiples, which were then used to inform the specific operational targets that aligned with Tesla's plans for future growth. Nevertheless, the Board considers each of the market capitalization and operational milestones to be challenging hurdles. For example, in order to meet all 12 market capitalization milestones, Tesla will have to add approximately $600 billion to its market capitalization at the time of the grant of the 2018 CEO Performance Award, and in order to satisfy all eight revenue-based operational milestones, Tesla would have to increase revenue by more than $163 billion from its annual revenue of approximately $11.8 billion in 2017, the last fiscal year completed prior to the grant of the 2018 CEO Performance Award.

D. Difficulty of meeting the performance benchmarks

The following is from page 17 of the 2019 proxy:

The structure of the 2018 CEO Performance Award is truly extraordinary and was not intended to be a periodically recurring award. Each of the market capitalization and operational milestones was carefully selected to be challenging to achieve, and not attainable merely with the passage of time or with the growth of Tesla at a modest pace. For example, each of the 12 market capitalization milestones requires that Tesla add an amount in market capitalization nearly equal to the total market capitalization of Tesla at the time of the grant, and achieving all 12 such milestones would make Tesla one of the most valuable companies in the world as of the time of the grant. Likewise, achieving the first of each of the applicable revenue-based and Adjusted EBITDA-based (as defined in "Executive Compensation—Compensation Discussion and Analysis—Chief Executive Officer Compensation—2018 CEO Performance Award" below) operational milestones required increasing by approximately 70% the total annual revenue in 2017, the last completed year prior to the grant of the 2018 CEO Performance Award, and increasing by approximately 133% the Adjusted EBITDA for 2017. Achieving all of the revenue-based operational milestones or all of the Adjusted EBITDA-based operational milestones would require increases by factors of 15 or 22, respectively, from the applicable 2017 levels.

Appendix 3: Capital raised by Tesla from 2018–2023

Gaining market capitalization of 1200% is not the same as stock return of 1200% when firms raise capital. And Tesla has raised capital regularly since the grant date. Since meeting the performance threshold for option grants was based on market capitalization, we need to see if the board makes any adjustments for capital raise.

From 2019 proxy, the firm appears to be adjusting for spinoff and divestitures and mergers in determining whether the market cap thresholds were met, but there is no mention of adjustment for raising capital (Specifically, the proxy notes "*Upon the consummation of certain acquisitions or split-up, spin-off or divestiture transactions, each then-unachieved market capitalization milestone and/or operational milestone will be adjusted to offset the impact of such transactions to the extent they could be considered material to the achievement of those milestones.*"). Therefore, we obtained the total capital raise from the Statement of Cash Flows for 2018–2020 from https://www.sec.gov/Archives/edgar/data/1318605/000156459021004599/tsla-10k_20201231.htm and for 2021–2023 from https://www.sec.gov/Archives/edgar/data/1318605/000162828024002390/tsla-20231231.htm.

Fiscal Year	Proceeds from issuances of common stock in public offerings, net of issuance costs	Proceeds from exercises of stock options and other stock issuances	Total ($ millions)
2018	0	296	296
2019	848	263	1,111
2020	12,269	417	12,686
2021	0	707	707
2022	0	541	541
2023	0	700	700
Total	13,117	2,924	16,041

As can be seen above, the estimated capital raised by Tesla from 2018 to 2023 is $16 billion. This amount is insignificant compared to the $600 billion increase in market capitalization that was needed to earn the full award.

Appendix 4: Estimating Tesla's adjusted EBITDA for 2017

To estimate Adjusted EBITDA, we went to the 2017 10-K statement. https://www.sec.gov/Archives/edgar/data//1318605/000156459018002956/tsla-10k_20171231.htm#Consolidated_Statmnts_of_Cmprehnsve_Loss. Adjusted EBITDA as per proxy statement "means (i) net income (loss) attributable to common stockholders before (ii) interest expense, (iii) (benefit) provision for income taxes, (iv) depreciation and amortization, and (v) stock-based compensation, as each such item is reported in Tesla's financial statements on Forms 10-Q or 10-K filed with the SEC for the previous four consecutive fiscal quarters."

Following the above definition, our estimate works out to $644,168,000.

	FY 2017 ('000s)
net income (loss) attributable to common stockholders	(1,961,400)
(+) interest expense	471,259
(+) (benefit) provision for income taxes	31,546
(+) depreciation and amortization	1,636,003
(+) stock-based compensation	466,760
Adjusted EBITDA	644,168

Appendix 5: Estimating how many firms met Tesla's performance targets

Our methodology is as follows. We start with all publicly-traded firms in the Compustat database from 1950 to 2017. We choose 2017 as the last year because this is the latest year for which data was available to Tesla's board at the time of the 2018 grant.

Consider a firm for the year 2017. For this firm, we estimate the 1-year growth in market capitalization, the 1-year growth in Total Revenue, and the 1-year growth in Adjusted EBITDA. We first check if this firm achieved one of the five combinations of benchmarks described earlier in

Section 1.3.8. If so, we consider the firm as having achieved Tesla's benchmark in 2017. But the CEO of Tesla had 10 years to achieve the benchmark. Thus, we do the same exercise using the 2-year growth rate, 3-year growth rate…,10-year growth rate as of 2017. If the firm had met the benchmark using any of the 10 growth rates, we consider the firm as having met the benchmark in 2017. We repeat this exercise for all firms in our sample and for all years that they exist in the sample.

There are three types of firms that do not survive for 10 years: either they go bankrupt, or they get acquired, or they go private. Bankrupt firms definitely would not have met the Tesla benchmarks, while acquired firms and go-private firms include both poor performers and superior performers. Thus, it is not obvious excluding non-survivors would materially alter our estimate of firms that would have met Tesla's benchmarks in either direction.

Of the 243,366 firm-years in our sample, 1.2% were able to achieve the benchmarks that Tesla's board imposed on its CEO in its 2018 contract.

Appendix 6: 2012 Pay package as given in 2013 proxy

On August 1, 2012, our Board of Directors approved a grant to Mr. Musk of options to purchase 5,274,901 shares of our common stock at an exercise price of $31.17 per share representing 5% of our total issued and outstanding shares as of August 13, 2012, the effective date of such grant (the "2012 CEO Grant"). The 2012 CEO Grant consists of ten equal vesting tranches, with a vesting schedule based entirely on the attainment of both operational and market capitalization milestones, as further detailed below.

Each of the ten vesting tranches requires that the Company meet a combination of an operational milestone achievement and a significant increase in our market capitalization of $4.0 billion. Since our average market capitalization for the 30 trading days prior to August 13, 2012, the date of grant, was $3.2 billion, the first tranche will only vest when we more than double our market

capitalization to $7.2 billion and at least one of the operational milestones described below is met. The second tranche would vest only if there is another $4.0 billion increase in our market capitalization to $11.2 billion and when two of the operational milestones described below are met. The remaining tranches are structured in a similar manner, so that the 2012 CEO Grant would be fully vested when we achieve a market capitalization of $43.2 billion and all ten operational milestones described below have been achieved. Market capitalization for purposes of milestone achievement will be determined based on a rolling six month historic average (based on trading days only). The market capitalization for a particular trading day is equal to the closing price multiplied by outstanding shares of common stock as of the end of such trading day. To give some perspective on these targets, note that, as of April 11, 2013, Ford Motor Company and General Motors Company had market capitalizations of approximately $53 billion and $40 billion, respectively. The term of the 2012 CEO Grant is ten years, so that if any vesting tranches remain unvested after expiration of the 2012 CEO Grant, they will be forfeited. In addition, Mr. Musk will forfeit any unvested options if he is terminated as CEO of the Company, whether for cause or otherwise.

In addition to the market capitalization milestones, vesting for each of the ten tranches requires achievement of certain operational milestones. To illustrate, vesting of the first tranche requires the achievement of any one of the ten defined operational milestones, vesting of the second tranche requires the achievement of any two of the ten defined operational milestones, etc. The ten operational milestones for the 2012 CEO Grant are:

- Successful completion of the Model X Engineering Prototype (Alpha);
- Successful completion of the Model X Vehicle Prototype (Beta);
- Completion of the first Model X Production Vehicle;
- Successful completion of the Gen III Engineering Prototype (Alpha);

- Successful completion of the Gen III Vehicle Prototype (Beta);
- Completion of the first Gen III Production Vehicle;
- Gross margin of 30% or more for four consecutive quarters;
- Aggregate vehicle production of 100,000 vehicles;
- Aggregate vehicle production of 200,000 vehicles; and
- Aggregate vehicle production of 300,000 vehicles.

This grant is intended to compensate Mr. Musk over its ten-year term and will become vested as to all shares subject to it only if our market capitalization increases to $43.2 billion and all ten performance milestones are achieved during such ten year period. $1/10^{th}$ of the total number of shares subject to the option will become vested and exercisable each time: (i) our market capitalization increases by $4.0 billion above the initially measured market capitalization of $3.2 billion; and (ii) one of ten specified performance milestones relating to the development of our Model X and Gen III vehicles and our total production of vehicles is attained, subject to Mr. Musk's continued service to us at each such vesting event. If any shares have not vested by the end of the ten-year term of the option, they will be forfeited and Mr. Musk will not realize the value of such shares. As of the date of this filing, no vesting milestones for this grant have been achieved and no shares subject to this grant have vested. See "*Executive Compensation — Compensation Discussion and Analysis — CEO Compensation*" above.

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