

## Tesla Inc TSLA (NAS) | ★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
355.49 USD	179.00 USD	Very High	None	Positive	Standard	Autos

UNITED STATES DISTRICT COURT	
NORTHERN DISTRICT OF CALIFORNIA	
Case Number:	3:18-cv-04865-EMC
PLTF / DEFT Exhibit No.	<b>429</b>
Date Admitted:	
By:	
Angella Meuleman, Deputy Clerk	

## Tesla Buyout Looks Likely to Us, but Timing and Structure Uncertain

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**Analyst Note** 13 Aug 2018

Tesla CEO Elon Musk issued a blog post Aug. 13 that states he is still gauging shareholder interest in Tesla going private at \$420 a share, but our impression of his words is that he thinks it can happen, and we agree. Tesla's board still must receive a formal proposal and then will have to evaluate it, so we think a deal will not happen this week but will eventually be announced. Musk also said the Saudi Arabian sovereign wealth fund has taken almost a 5% stake in Tesla, and he met with it recently about going private. All shareholders would have the choice of having their stock bought out at \$420 a share or remaining invested in a private Tesla. We speculate that retail investors may have their equity moved to a publicly traded special-purpose vehicle while accredited investors would only be able to buy or sell shares every six months.

We are maintaining our fair value estimate. We have changed our thinking since our Aug. 7 note and will not be raising our fair value estimate to the deal price. We normally would increase our valuation to a probability-weighted average of the offered price and our intrinsic value. However, Tesla's possible buyout is abnormal in that equityholders have the option to remain equityholders in a private Tesla, or at least own a special-purpose vehicle that would in turn own private Tesla, so we view this deal as similar to a tender offer. We see Tesla's equity ownership merely transferring to a different vehicle rather than going away as in a traditional buyout, so we do not see a deal changing our opinion of the intrinsic value of Tesla's publicly traded stock.

We think \$420 is way too high a value, given our \$179 fair value estimate. To generate a \$420 per share valuation in our discounted cash flow model, we would need to almost triple our current projection for 2027 midcycle EBIT margin from 9% to nearly 23%. If someone wants to overpay,

**Vital Statistics**

Market Cap (USD Mil)	60,644
52-Week High (USD)	389.61
52-Week Low (USD)	244.59
52-Week Total Return %	0.0
YTD Total Return %	14.2
Last Fiscal Year End	31 Dec 2017
5-Yr Forward Revenue CAGR %	33.0
5-Yr Forward EPS CAGR %	—
Price/Fair Value	1.99

**Valuation Summary and Forecasts**

	Fiscal Year:	2016	2017	2018(E)	2019(E)
Price/Earnings		NM	NM	NM	98.7
EV/EBITDA		115.2	—	144.1	25.7
EV/EBIT		NM	—	NM	NM
Free Cash Flow Yield %		-1.8	—	-3.1	0.0
Dividend Yield %		—	—	—	—

**Financial Summary and Forecasts (USD Mil)**

	Fiscal Year:	2016	2017	2018(E)	2019(E)
Revenue		7,000	11,759	21,009	28,775
Revenue YoY %		73.0	68.0	78.7	37.0
EBIT		-652	-1,632	-1,405	-150
EBIT YoY %		-9.1	150.5	-13.9	-89.3
Net Income, Adjusted		-414	-1,436	-797	646
Net Income YoY %		-40.1	247.0	-44.5	-181.1
Diluted EPS		-2.87	-8.66	-4.69	3.60
Diluted EPS YoY %		-46.8	201.9	-45.9	-176.7
Free Cash Flow		-916	-3,697	-2,041	-603
Free Cash Flow YoY %		-46.4	303.7	-44.8	-70.5

Historical/forecast data sources are Morningstar Estimates and may reflect adjustments.

Analyst Note: Operating income includes stock based comp expense but EPS excludes stock option expense.

**Profile**

Founded in 2003 and based in Palo Alto, California, Tesla is a vertically integrated sustainable energy company that also aims to transition the world to electric mobility by making electric vehicles. It sells solar panels and solar roofs for energy generation plus batteries for stationary storage for residential and commercial properties including utilities. The Tesla Roadster debuted in 2008, Model S in 2012, Model X in 2015, and Model 3 in 2017. Global deliveries in 2017 were 103,184 units. Tesla went public in 2010 and employs about 40,000 people.

**Important Disclosure**

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The primary analyst covering this company does not own its stock.

Research as of 13 Aug 2018  
Estimates as of 01 Aug 2018  
Pricing data through 10 Aug 2018 00:00  
Rating updated as of 10 Aug 2018 00:00

Currency amounts expressed with "\$" are in U.S. dollars (USD) unless otherwise denoted.

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however, we can't say it's a bad deal for shareholders.

In an Aug. 7 employee email, Musk said he wants to be free of the pressure of quarterly earnings, wild swings in stock prices that hurt all employees since they are shareholders, and attacks by short sellers. He also said going private is the best path forward so Tesla can focus only on growing for the long term, and we agree. Musk expects he will continue to own about 20% of a private Tesla, similar to his present stake. We like this arrangement because unlike normal buyouts, Tesla's deal, if it happens, allows current shareholders to still profit from any appreciation in Tesla's market value over time despite it going private. In the Aug. 7 email, he also said it will probably make sense for Tesla to go public again once its growth is slower and more predictable.

Issues around regulatory approval come to mind because it is unclear how Tesla will allow retail investors who are not accredited investors to own stakes in a private Tesla. That issue is why we think the special-purpose vehicle Musk pointed to in the Aug. 7 email may have to be publicly traded. The investment by investors from the Middle East and China could trigger pushback from the Trump administration on national security grounds, given Tesla's artificial intelligence and autonomous vehicle research, or just from the administration possibly not wanting nations from this part of the world to own a large stake in a U.S. automaker. We also are not clear on the fate of Tesla's existing \$10.9 billion of debt, \$7.7 billion of which is recourse debt. Several billion dollars of Tesla's bonds are redeemable for cash at the holder's option in a change-of-control situation. It is unclear if this buyout would be a change of control, given that equityholders do not have to sell. We think investors financing the buyout will bring new equity capital and possibly retire all of Tesla's existing debt. In addition, while leverage may remain conservative early on, the company could be recapitalized and see significant leverage added

back later in the transaction lifecycle, a common practice across the private equity space, according to our PitchBook team that focuses on private market transactions. Musk said in the Aug. 13 blog post on the Tesla website that most of the funding would be equity capital because he does not think it's a good idea to "burden Tesla with significantly increased debt." We agree with that statement as we already are uncomfortable with Tesla's debt levels. Shareholders in public Tesla would be diluted to remain invested with Musk once Tesla is private. Tesla has issued stock almost every year since its June 2010 initial public offering, so we do not think investors will place much concern on new dilution to go private.

Investors in public Tesla considering staying in private Tesla will in our view face the same execution risks Tesla has now--that is, whether it can fund its growth ambitions while also eventually making a high number of vehicles at a profit. If buyout funding takes the form of debt, then we think Tesla will probably continue to have significant balance sheet risk. The difference for the public accredited investor now is that once Tesla is private, daily liquidity will be gone. Our PitchBook analysts think Musk's liquidity plan makes a lot of sense. They believe the liquidity window to which Musk's plan alluded does not seem different from the standard liquidity that Nasdaq Private Market and other sources have been facilitating for private companies on a regular basis, although not daily. The practice has become more common, and we point to the ability for Lyft, Spotify, and Uber to facilitate private secondary liquidity for shareholders as good examples. We stress, however, that Nasdaq Private Market liquidity for Tesla would be determined by Tesla and would probably be for time windows to buy or sell every six months, based on language in Musk's Aug. 7 email to employees posted on Tesla's website.

Musk in an Aug. 7 tweet said, "Investor support is confirmed. Only reason why this is not certain is that it's contingent on

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a shareholder vote." We think this statement means Musk believes he has enough votes to go private. Musk also said in the Aug. 13 blog post that he estimates about two thirds of shareholders would go private and therefore not sell at \$420. It sounds to us that he is not done talking to shareholders to gauge interest, but his estimate of about 66% of shareholders not tendering is not far off from our own assumption of 60%. We expect a deal, if announced, would be approved, and we estimate about 40% of shareholders will sell their shares at \$420 or whatever a deal price ends up being, mostly due to their own mandates on not being able to hold private stock or caps on illiquid securities. This assumption puts the shareholder buyout price at \$28.7 billion, by our calculation. We think most shareholders believe in Musk and want to remain invested with him. The six largest shareholders (Musk, Fidelity, Baillie Gifford, T. Rowe Price, TenCent, and the Saudi Arabia sovereign wealth fund) own about 53% of the stock by our estimates. We'd expect all these owners to not sell any of their stock because we think they believe Tesla can be far bigger than it is today. We do expect some forced selling from entities that cannot own private companies, such as index funds or some exchange-traded funds, but we think most Tesla retail and institutional shareholders are very loyal and patient with Musk and will want to remain invested. We think if the deal fails to happen, it would be due to regulatory issues mentioned earlier rather than lack of available capital. Musk said the Saudi sovereign wealth fund has been meeting with him since early 2017, trying to get him to take Tesla private, and at a July 31 meeting this year expressed regret to Musk that he has not taken it up on its offer. We assume the Saudis would put up sizable capital to help fund the deal and that is why Musk's first Aug. 7 tweet on a buyout said, "funding secured."

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## Morningstar Analyst Forecasts

### Financial Summary and Forecasts

Fiscal Year Ends in December

	3-Year Hist. CAGR	2015	2016	2017	Forecast		5-Year Proj. CAGR
					2018	2019	
Growth (% YoY)							
Revenue	48.4	12.4	73.0	68.0	78.7	37.0	33.0
EBIT	—	589.0	-9.1	150.5	-13.9	-89.3	—
EBITDA	-68.7	-329.9	-200.5	-98.7	12,301.8	461.4	334.8
Net Income	-517.0	-3,590.1	-40.1	247.0	-44.5	-181.1	—
Diluted EPS	-496.3	-3,971.8	-46.8	201.9	-45.9	-176.7	—
Earnings Before Interest, after Tax	—	562.6	-5.1	83.8	36.1	-89.3	—
Free Cash Flow	—	58.8	-46.4	303.7	-44.8	-70.5	—

	3-Year Hist. Avg	2015	2016	2017	2018	2019	5-Year Proj. Avg
Operating Margin %	-13.6	-17.7	-9.3	-13.9	-6.7	-0.5	-0.1
EBITDA Margin %	-1.0	-7.3	4.2	0.0	2.3	9.5	10.5
Net Margin %	-11.7	-17.1	-5.9	-12.2	-3.8	2.3	2.6
Free Cash Flow Margin %	-28.9	-42.2	-13.1	-31.4	-9.7	-2.1	-0.8
ROIC %	-11.1	-18.4	-6.1	-8.8	-6.1	-0.1	1.7
Adjusted ROIC %	-11.1	-18.4	-6.1	-8.8	-6.1	-0.1	1.7
Return on Assets %	-8.7	-13.4	-5.0	-7.6	-5.9	-1.7	-0.8
Return on Equity %	-49.2	-78.1	-25.9	-43.6	-48.3	-15.6	-6.5

	3-Year Hist. Avg	2015	2016	2017	2018	2019	5-Year Proj. Avg
Debt/Capital	0.67	0.70	0.60	0.71	0.80	0.75	0.75
Total Debt/EBITDA	882.81	-9.01	24.09	2,633.36	21.65	4.59	6.60
EBITDA/Interest Expense	-0.33	-2.47	1.49	0.01	0.78	4.36	6.43

### Valuation Summary and Forecasts

	2016	2017	2018(E)	2019(E)
Price/Fair Value	1.21	1.53	—	—
Price/Earnings	NM	NM	NM	98.7
EV/EBITDA	115.2	—	144.1	25.7
EV/EBIT	NM	—	NM	NM
Free Cash Flow Yield %	-1.8	—	-3.1	0.0
Dividend Yield %	—	—	—	—

### Key Valuation Drivers

Cost of Equity %	11.0
Pre-Tax Cost of Debt %	8.0
Weighted Average Cost of Capital %	9.9
Long-Run Tax Rate %	20.0
Stage II EBI Growth Rate %	11.5
Stage II Investment Rate %	57.5
Perpetuity Year	11

Additional estimates and scenarios available for download at <http://select.morningstar.com>.

### Discounted Cash Flow Valuation

	USD Mil	Firm Value (%)	Per Share Value
Present Value Stage I	4,363	13.4	25.66
Present Value Stage II	1,021	3.1	6.00
Present Value Stage III	27,120	83.4	159.53
<b>Total Firm Value</b>	<b>32,504</b>	<b>100.0</b>	<b>191.20</b>
Cash and Equivalents	3,368	—	19.81
Debt	-10,315	—	-60.68
Preferred Stock	—	—	—
Other Adjustments	3,082	—	18.13
<b>Equity Value</b>	<b>28,638</b>	<b>—</b>	<b>168.46</b>
Projected Diluted Shares	170		
<b>Fair Value per Share (USD)</b>	<b>179.00</b>		

The data in the table above represent base-case forecasts in the company's reporting currency as of the beginning of the current year. Our fair value estimate may differ from the equity value per share shown above due to our time value of money adjustment and in cases where probability-weighted scenario analysis is performed.

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## Morningstar Analyst Forecasts

### Income Statement (USD Mil)

Fiscal Year Ends in December

	2015	2016	2017	Forecast	
				2018	2019
<b>Revenue</b>	<b>4,046</b>	<b>7,000</b>	<b>11,759</b>	<b>21,009</b>	<b>28,775</b>
Cost of Goods Sold	3,103	5,370	9,492	16,395	21,172
<b>Gross Profit</b>	<b>943</b>	<b>1,630</b>	<b>2,266</b>	<b>4,614</b>	<b>7,603</b>
Selling, General & Administrative Expenses	833	1,267	2,271	3,015	3,725
Research & Development	629	680	1,160	2,059	2,734
Employee Compensation & Benefits	198	334	467	945	1,295
Depreciation & Amortization (if reported separately)	—	—	—	—	—
<b>Operating Income (ex charges)</b>	<b>-717</b>	<b>-652</b>	<b>-1,632</b>	<b>-1,405</b>	<b>-150</b>
Restructuring & Other Cash Charges	—	16	—	—	—
Impairment Charges (if reported separately)	—	—	—	—	—
Other Non-Cash (Income)/Charges	—	—	—	—	—
<b>Operating Income (incl charges)</b>	<b>-717</b>	<b>-667</b>	<b>-1,632</b>	<b>-1,405</b>	<b>-150</b>
Interest Expense	119	199	471	620	626
Interest Income	2	9	20	5	5
<b>Pre-Tax Income</b>	<b>-834</b>	<b>-858</b>	<b>-2,084</b>	<b>-2,020</b>	<b>-771</b>
Income Tax Expense	13	27	32	-202	-77
Other After-Tax Cash Gains (Losses)	—	—	—	—	—
Other After-Tax Non-Cash Gains (Losses) (Minority Interest)	-42	121	154	170	175
(Preferred Dividends)	—	—	—	—	—
<b>Net Income</b>	<b>-889</b>	<b>-764</b>	<b>-1,961</b>	<b>-1,648</b>	<b>-519</b>
Weighted Average Diluted Shares Outstanding	128	144	166	170	180
<b>Diluted Earnings Per Share</b>	<b>-6.93</b>	<b>-5.30</b>	<b>-11.83</b>	<b>-9.69</b>	<b>-2.89</b>
Adjusted Net Income	-691	-414	-1,436	-797	646
<b>Diluted Earnings Per Share (Adjusted)</b>	<b>-5.39</b>	<b>-2.87</b>	<b>-8.66</b>	<b>-4.69</b>	<b>3.60</b>
Dividends Per Common Share	—	—	—	—	—
<b>EBITDA</b>	<b>-294</b>	<b>280</b>	<b>4</b>	<b>486</b>	<b>2,727</b>
<b>Adjusted EBITDA</b>	<b>-294</b>	<b>296</b>	<b>4</b>	<b>486</b>	<b>2,727</b>

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## Morningstar Analyst Forecasts

### Balance Sheet (USD Mil)

Fiscal Year Ends in December

	2015	2016	2017	Forecast	
				2018	2019
Cash and Equivalents	1,197	3,393	3,368	1,116	4,108
Investments	—	—	—	—	—
Accounts Receivable	169	499	515	1,151	1,577
Inventory	1,278	2,067	2,264	4,043	5,220
Deferred Tax Assets (Current)	—	—	—	—	—
Other Short Term Assets	170	568	865	865	865
<b>Current Assets</b>	<b>2,814</b>	<b>6,528</b>	<b>7,012</b>	<b>7,175</b>	<b>11,770</b>
Net Property Plant, and Equipment	3,403	11,903	16,375	16,964	18,117
Goodwill	—	—	60	120	180
Other Intangibles	13	376	362	367	372
Deferred Tax Assets (Long-Term)	—	—	—	—	—
Other Long-Term Operating Assets	1,791	3,134	4,117	1,528	1,681
Long-Term Non-Operating Assets	47	723	730	900	1,075
<b>Total Assets</b>	<b>8,068</b>	<b>22,664</b>	<b>28,655</b>	<b>27,054</b>	<b>33,195</b>
Accounts Payable	916	1,860	2,390	4,267	5,510
Short-Term Debt	628	1,150	897	1,100	1,100
Deferred Tax Liabilities (Current)	—	—	—	—	—
Other Short-Term Liabilities	1,267	2,817	4,388	4,478	5,374
<b>Current Liabilities</b>	<b>2,811</b>	<b>5,827</b>	<b>7,675</b>	<b>9,845</b>	<b>11,984</b>
Long-Term Debt	2,021	5,970	9,418	9,418	11,418
Deferred Tax Liabilities (Long-Term)	—	—	—	—	—
Other Long-Term Operating Liabilities	1,740	3,062	3,487	1,224	1,591
Long-Term Non-Operating Liabilities	365	1,891	2,443	2,443	2,443
<b>Total Liabilities</b>	<b>6,937</b>	<b>16,750</b>	<b>23,023</b>	<b>22,930</b>	<b>27,436</b>
Preferred Stock	—	—	—	—	—
Common Stock	0	0	0	0	0
Additional Paid-in Capital	3,409	7,774	9,178	9,178	11,178
Retained Earnings (Deficit)	-2,322	-2,997	-4,974	-6,622	-7,141
(Treasury Stock)	—	—	—	—	—
Other Equity	44	-15	33	33	33
<b>Shareholder's Equity</b>	<b>1,131</b>	<b>4,762</b>	<b>4,237</b>	<b>2,589</b>	<b>4,070</b>
Minority Interest	—	1,152	1,395	1,535	1,688
<b>Total Equity</b>	<b>1,131</b>	<b>5,914</b>	<b>5,632</b>	<b>4,124</b>	<b>5,758</b>

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## Morningstar Analyst Forecasts

### Cash Flow (USD Mil)

Fiscal Year Ends in December

	2015	2016	2017	Forecast	
				2018	2019
Net Income	-889	-773	-2,241	-1,648	-519
Depreciation	423	947	1,636	1,891	2,877
Amortization	—	—	—	—	—
Stock-Based Compensation	198	334	467	945	1,295
Impairment of Goodwill	—	—	—	—	—
Impairment of Other Intangibles	—	—	—	—	—
Deferred Taxes	—	—	—	—	—
Other Non-Cash Adjustments	237	62	574	-170	-175
(Increase) Decrease in Accounts Receivable	46	-217	-25	-636	-426
(Increase) Decrease in Inventory	-1,574	-2,466	-1,701	-1,779	-1,178
Change in Other Short-Term Assets	-54	7	-88	5	5
Increase (Decrease) in Accounts Payable	263	751	388	1,877	1,243
Change in Other Short-Term Liabilities	1,394	2,000	1,440	90	896
<b>Cash From Operations</b>	<b>44</b>	<b>646</b>	<b>451</b>	<b>576</b>	<b>4,019</b>
(Capital Expenditures)	-1,635	-1,281	-3,415	-2,450	-4,000
Net (Acquisitions), Asset Sales, and Disposals	-12	214	-115	-100	-100
Net Sales (Purchases) of Investments	—	17	—	—	—
Other Investing Cash Flows	-26	-366	-890	325	214
<b>Cash From Investing</b>	<b>-1,674</b>	<b>-1,416</b>	<b>-4,419</b>	<b>-2,225</b>	<b>-3,886</b>
Common Stock Issuance (or Repurchase)	750	1,702	400	—	2,000
Common Stock (Dividends)	—	—	—	—	—
Short-Term Debt Issuance (or Retirement)	—	—	—	203	—
Long-Term Debt Issuance (or Retirement)	319	2,853	7,138	—	2,000
Other Financing Cash Flows	-114	-1,580	-3,635	-806	-1,141
<b>Cash From Financing</b>	<b>955</b>	<b>2,974</b>	<b>3,904</b>	<b>-602</b>	<b>2,859</b>
Exchange Rates, Discontinued Ops, etc. (net)	-34	-7	39	—	—
<b>Net Change in Cash</b>	<b>-709</b>	<b>2,196</b>	<b>-25</b>	<b>-2,252</b>	<b>2,992</b>

# Research Methodology for Valuing Companies

## Qualitative Equity Research Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. We believe this bottom-up, long-term, fundamentally based approach allows our analysts to focus on long-term business drivers, which have the greatest valuation impact, rather than short-term market noise.

Morningstar's equity research group ("we," "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at an uncertainty-adjusted discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate and (4) the current market price. This process ultimately culminates in our single-point star rating.

### 1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define excess economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats:

intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

To assess the direction of the underlying competitive advantages, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages over the next several years; or negative when we see signs of deterioration.

All the moat and moat trend ratings undergo periodic review and any changes must be approved by the Morningstar Economic Moat Committee, comprised of senior members of Morningstar's equity research department.

### 2. Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

#### Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working-capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes, or EBI, and the net new investment, or NNI, to derive our annual free cash flow forecast.

#### Stage II: Fade

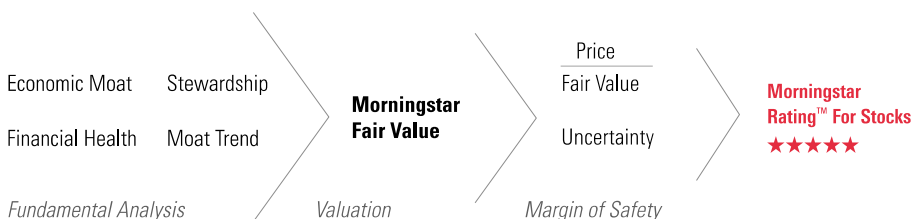
The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested ("RONIC")—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital, or RONIC, and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until the perpetuity stage is reached. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

#### Stage III: Perpetuity

Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term market-value weights.

## Morningstar Research Methodology for Valuing Companies



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# Research Methodology for Valuing Companies

## 3. Uncertainty Around That Fair Value Estimate

Morningstar's Uncertainty Rating captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating represents the analysts' ability to bound the estimated value of the shares in a company around the fair value estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, and other company-specific factors.

Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case, and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate.

Our recommended margin of safety widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the uncertainty rating provides guidance in portfolio construction based on risk tolerance.

Our uncertainty ratings for our qualitative analysis are low, medium, high, very high, and extreme.

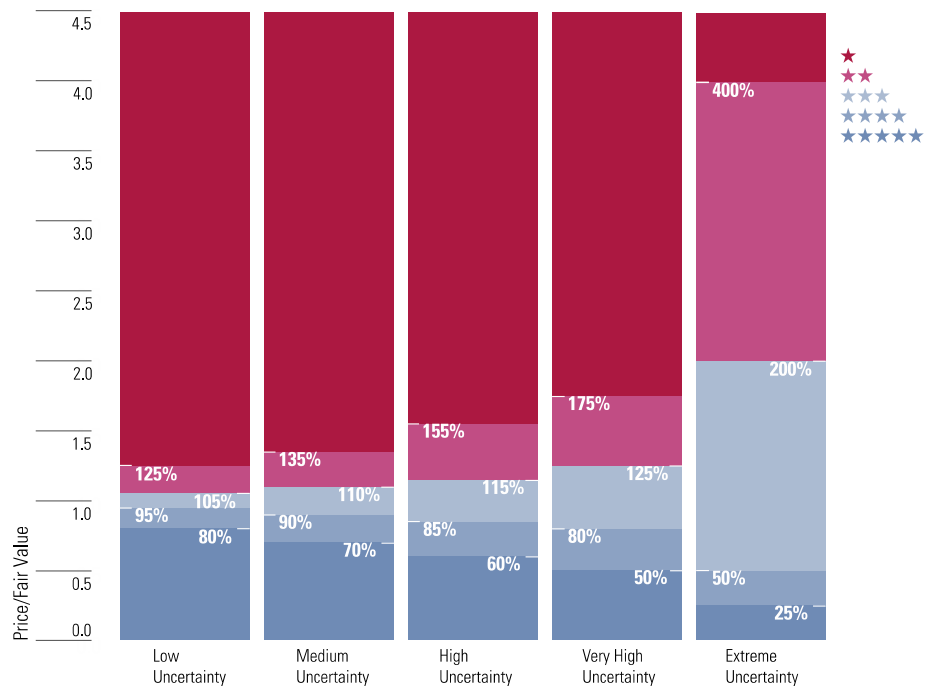
- ▶ Low—margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- ▶ Medium—margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- ▶ High—margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- ▶ Very High—margin of safety for 5-star rating is a 50% discount and for 1-star rating is 75% premium.
- ▶ Extreme—margin of safety for 5-star rating is a 75% discount and for 1-star rating is 300% premium.

## 4. Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed, which we believe is a reliable source.

For more details about our methodology, please go to <https://shareholders.morningstar.com>.

Morningstar Equity Research Star Rating Methodology



### Morningstar Star Rating for Stocks

Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time, generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk-adjusted return is highly likely over a multiyear time frame. The current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. The market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

# Research Methodology for Valuing Companies

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## Other Definitions

**Last Price:** Price of the stock as of the close of the market of the last trading day before date of the report.

**Stewardship Rating:** Represents our assessment of management's stewardship of shareholder capital, with particular emphasis on capital allocation decisions. Analysts consider companies' investment strategy and valuation, financial leverage, dividend and share buyback policies, execution, compensation, related party transactions, and accounting practices. Corporate governance practices are only considered if they've had a demonstrated impact on shareholder value. Analysts assign one of three ratings: "Exemplary," "Standard," and "Poor." Analysts judge stewardship from an equity holder's perspective. Ratings are determined on an absolute basis. Most companies will receive a Standard rating, and this is the default rating in the absence of evidence that managers have made exceptionally strong or poor capital allocation decisions.

**Quantitative Valuation:** Using the below terms, intended to denote the relationship between the security's Last Price and Morningstar's quantitative fair value estimate for that security.

- ▶ Undervalued: Last Price is below Morningstar's quantitative fair value estimate.
- ▶ Fairly Valued: Last Price is in line with Morningstar's quantitative fair value estimate.
- ▶ Overvalued: Last Price is above Morningstar's quantitative fair value estimate.

## Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. Morningstar's Uncertainty Rating serves as a useful data point with respect to sensitivity analysis of the assumptions used in our determining a fair value price.

# Tesla Inc TSLA (NAS) | ★

Last Price	Fair Value	Uncertainty	Economic Moat™	Moat Trend™	Stewardship	Industry Group
355.49 USD	179.00 USD	Very High	None	Positive	Standard	Autos



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