Valuation of Tesla, Inc.

Masaryk University
Faculty of Economics and Administration

MPF_AFAP : Corporate Finance

Submitted to:

Ing. Veronika Kajurová, PhD.
Ing. Tomáš Výrost, PhD.

Date : May 1, 2025

Anusha Pramidala - 570858

Declaration

I hereby declare that this project report, submitted for the MPF_AFAP Corporate Finance course, is the result of my own independent work and investigation. All sources used have been appropriately acknowledged and cited in the bibliography. I confirm that this work has not been previously submitted for assessment in any other course or institution.

Anusha Pramidala

Date: May 1, 2025
Location: Brno, Czech Republic

Contents

1 Company Introduction

Tesla, Inc. stands as a pivotal, often polarizing, company not only in the automotive industry but also in the broader transition towards sustainable energy. Its journey from a skeptical startup to a global force is marked by radical innovation, near-death experiences, disruptive strategy, and continuous controversy, offering a compelling case study in modern corporate finance.

Basic Information and Founding

Contrary to common perception, Tesla Motors was incorporated on July 1, 2003, not by Elon Musk, but by Silicon Valley engineers Martin Eberhard and Marc Tarpenning. Frustrated by the demise of projects like GM's EV1 and fueled by concerns about oil dependency and climate change, their vision was to prove electric vehicles could be desirable, high-performance machines. They saw potential in lithium-ion battery technology. Ian Wright and JB Straubel joined the early team. Elon Musk became the crucial early investor and chairman in February 2004, providing capital and increasingly influencing direction. A later settlement recognized all five (Eberhard, Tarpenning, Wright, Musk, Straubel) as co-founders. The company is headquartered in Austin, Texas.

Products and Business Model

Tesla's initial strategy was a top-down disruption model: start with a high-priced, low-volume luxury sports car (the Tesla Roadster, 2008) aimed at wealthy early adopters, using profits to fund more affordable mainstream EVs. The Roadster was the first highway-legal production EV using lithium-ion cells, boasting significant range and acceleration.

This strategy evolved to include the Model S sedan (2012), Model X SUV (2015), the mass-market Model 3 sedan (2017), and the Model Y crossover (2020), along with niche products like the Tesla Semi (2022) and Cybertruck (2023). These vehicles consistently pushed boundaries in range, performance, and integrated technology.

Around 2016, Tesla's mission officially expanded to "sustainable energy", justifying the controversial acquisition of SolarCity and bolstering the Tesla Energy division's portfolio of solar (e.g., Solar Roof) and battery storage products (Powerwall for residential, Megapack for utility-scale).

The business model integrates vehicle sales/leasing, energy solutions, and related services, including the proprietary Supercharger network (a key competitive advantage alleviating range anxiety) and software services like Autopilot and Full Self-Driving (FSD) capabilities. Tesla relies heavily on brand magnetism and CEO publicity rather than traditional advertising. Revenue is dominated by Automotive sales (80% recently), supplemented by Energy Generation/Storage and Services/Other (10% each), with regulatory credits historically boosting profitability.

Organizational Structure and Operations

While specific details evolve, Tesla generally operates with a functional organizational structure led by CEO Elon Musk, with key divisions focusing on automotive, energy, engineering, manufacturing, and sales. A hallmark is its high degree of vertical integration, controlling design and manufacturing from battery packs and motors to software and advanced microcontrollers (FSD chip). Tesla is implementing

a 48-volt architecture for efficiency and utilizes Over-the-Air (OTA) software updates for continuous improvement.

Scaling production required building massive Gigafactories (Nevada, New York, Shanghai, Berlin, Texas) designed for economies of scale. Operations faced significant challenges, notably the Model 3 "production hell" (circa 2017-2018). Tesla vehicles consistently achieve high safety ratings.

Market and Competitors

Tesla operates in the global automotive and energy sectors.

- **Automotive Market:** Faces intense competition from established automakers rapidly expanding EV lineups (e.g., Volkswagen Group, BYD, Ford, General Motors, Stellantis, Hyundai/Kia) and newer EV companies (e.g., Rivian, Lucid Motors). Tesla's global BEV market leadership is challenged, particularly by lower-cost competitors like BYD in key markets. Its share of the total global auto market remains small (2% in 2024).
- **Energy Market:** Competes with solar installers (e.g., Sunrun, SunPower) and battery energy storage system providers.

The company's market valuation often exceeds traditional metrics, reflecting expectations of future growth in AI, robotics, and energy, but also sparking debate about overvaluation.

2 Financial Ratio Analysis

This section delves into Tesla's financial health and performance between 2020 and 2024 through key ratio analysis, covering profitability, liquidity, solvency, and operational efficiency.

Profitability Analysis

Tesla's profitability demonstrated significant growth commencing in 2020, reached a peak in 2022, and subsequently experienced a marked decline through 2024.

Table 1: Key Profitability Ratios (2020-2024)

Ratio	2020	2021	2022	2023	2024
Gross Profit Margin	21.0%	25.3%	25.6%	18.2%	17.9%
Operating Profit Margin (EBIT)	6.3%	12.1%	16.8%	9.2%	7.2%
Net Profit Margin (ROS with EAT)	2.3%	10.3%	15.4%	15.5%	7.3%
Return on Assets (ROA - using NOPAT)	3.8%	10.5%	16.6%	8.3%	6.2%
Return on Equity (ROE - using Net Income)	3.0%	17.5%	27.4%	23.6%	9.7%
Return on Capital Employed (ROCE)	5.3%	15.4%	24.5%	11.4%	8.3%
Return on Invested Capital (ROIC)	4.4%	12.9%	20.5%	9.6%	7.6%

Insights and Comments:

- **Margin Compression:** Gross and Operating margins peaked impressively in 2021/2022 but contracted significantly in 2023 and 2024. This trend, confirmed by vertical analysis showing Cost of Revenue rising from 74.4% of sales in 2022 to 82.1% in 2024 (reflected in 'CS Vertical IS.csv'), likely reflects heightened competition, strategic price cuts initiated by Tesla to stimulate demand (evident from 'Revenue Share.csv'), and potentially rising input costs or scaling inefficiencies.
- **Peak Profitability in 2022:** All major return metrics (ROA, ROE, ROCE, ROIC) achieved their highs in 2022, propelled by the strong margins and robust revenue growth observed that year (Total Revenue grew 51% YoY, based on 'Historical IS.csv').
- **Declining Returns:** The subsequent decline in returns by 2024 is a consequence of the aforementioned margin pressures coupled with slowing revenue growth (registering only 0.9% in 2024, per 'Historical IS.csv'). Notably, ROE fell sharply from 27.4% to 9.7% between 2022 and 2024.
- **Net Profit Margin Anomaly (2023):** The Net Profit Margin in 2023 (15.5%) appears relatively strong compared to the Operating Margin (9.2%). This anomaly was significantly influenced by a substantial negative provision for income taxes (a tax benefit of $5.0 billion, possibly related to deferred tax asset recognition, detailed in 'Historical IS.csv'), rather than reflecting core operational performance. Utilizing NOPAT (Net Operating Profit After Tax, adjusted for the tax shield on debt and a normalized tax rate) provides a clearer view of operational profitability via ROA/ROIC, both of which exhibit a consistent decline after 2022.

Liquidity Analysis

Tesla's liquidity position appears robust, particularly by 2024, despite some fluctuations during the analysis period.

Table 2: Key Liquidity Ratios (2020-2024)

Ratio	2020	2021	2022	2023	2024
Current Ratio	1.88	1.38	1.53	1.73	2.02
Quick Ratio (Acid Test)	1.49	1.00	0.94	1.13	1.42
Cash Ratio	1.36	0.90	0.83	1.01	1.27
Net Working Capital (Billion USD)	$12.5	$7.4	$14.2	$20.9	$29.5

Insights and Comments:

- **Strengthening Position:** The Current Ratio improved significantly from a low point in 2021 to 2.02 in 2024, indicating a strong capacity to cover short-term obligations. The Quick Ratio mirrored this trend, surpassing 1.0 again in 2023/2024 after a dip below, suggesting sufficient liquid assets even when excluding inventory.
- **Growing NWC:** Net Working Capital increased substantially over the period. This was driven primarily by a massive increase in total current assets (from $26.7B in 2020 to $58.4B in 2024, documented in 'Historical BS.csv'), which outpaced the growth in current liabilities.
- **Inventory Impact:** The divergence between the Current and Quick ratios widened notably in 2022 when inventory levels surged (jumping from $5.8B in 2021 to $12.8B in 2022, according to 'Historical BS.csv'), highlighting the sensitivity of liquidity measures to inventory build-up. This gap narrowed again by 2024 as inventory levels moderated relative to other current assets.
- **Cash Holdings:** Vertical analysis ('CS Vertical BS.csv') indicates Cash and Marketable Securities represented approximately 30% of total assets in 2024, up slightly from 27% in 2022, bolstering the strong liquidity ratios. The corrected Cash Ratio confirms the very strong immediate liquidity by 2024.

Solvency Analysis

Tesla significantly improved its solvency profile from 2020 to 2022 by reducing debt obligations, although leverage saw a slight increase in 2023 and 2024.

Table 3: Key Solvency Ratios (2020-2024)

Ratio	2020	2021	2022	2023	2024
Debt-to-Assets Ratio	31.2%	20.0%	11.5%	13.6%	15.9%
Debt-to-Equity Ratio	68.8%	39.3%	20.6%	22.8%	26.3%
Financial Leverage (Assets/Equity)	2.20	1.97	1.79	1.68	1.66
Interest Coverage Ratio (TIE)	2.7x	17.6x	71.5x	57.0x	20.2x

Note: Debt is defined as Total Debt (Short-Term Debt + Long-Term Debt + Finance Lease Liabilities), based on data sourced from 'Historical BS.csv'.

Insights and Comments:

- **Deleveraging Phase (2020-2022):** Tesla aggressively reduced its reliance on debt financing between 2020 and 2022. Total Debt fell substantially from $16.3B to $9.5B (per 'Historical BS.csv'), leading to dramatically lower Debt-to-Assets and Debt-to-Equity ratios. This phase coincided with strong profitability and equity base expansion.
- **Slight Re-Leveraging (2023-2024):** From 2023 onwards, total debt increased again (reaching $19.4B in 2024, per 'Historical BS.csv'), resulting in a modest uptick in leverage ratios. However, these ratios remain significantly below the 2020 levels. This could reflect funding requirements for continued expansion or share repurchase programs amidst slowing profitability.
- **Strong Interest Coverage:** The Times Interest Earned (TIE) ratio surged to exceptionally high levels in 2021/2022, driven by booming EBIT and reduced interest expense (details in 'Historical IS.csv'). While still very healthy at 20.2x in 2024, the TIE ratio has decreased significantly from its peak due to both lower EBIT and slightly higher interest expenses ('Historical IS.csv').
- **Equity Dominance:** Equity consistently forms the larger portion of the capital structure, particularly from 2021 onwards. Based on 'CS Vertical BS.csv', Total Equity constituted 60.4% of Total Assets in 2024.

Activity (Efficiency) Analysis

Tesla's operational efficiency presents a mixed picture over the period, with asset turnover peaking in 2022 followed by a decline, and a noticeable lengthening of the cash conversion cycle.

Table 4: Key Activity Ratios (2020-2024)

Ratio	2020	2021	2022	2023	2024
Inventory Turnover	7.7	9.3	6.3	7.1	8.1
Days Inventory Outstanding (DIO)	47.5	39.0	57.5	51.4	44.9
Receivables Turnover	16.7	28.1	27.6	27.6	22.1
Days Sales Outstanding (DSO)	21.8	13.0	13.2	13.2	16.5
Payables Turnover	5.2	5.4	5.3	6.7	7.8
Days Payables Outstanding (DPO)	70.0	68.0	68.4	54.4	46.6
Total Asset Turnover	0.60	0.87	0.99	0.91	0.80
Operating Cycle (DIO + DSO)	69.3	52.0	70.8	64.6	61.4
Net Operating Cycle (CCC)	-0.7	-16.0	2.4	10.2	14.8

Insights and Comments:

- **Inventory Management:** Inventory turnover experienced a significant slowdown in 2022 (DIO increased to 57.5 days), coinciding with the large inventory build-up noted in the liquidity analysis. While turnover improved by 2024 (DIO decreased to 44.9 days), it did not return to the peak efficiency levels of 2021. This may reflect challenges in aligning production volumes with evolving demand patterns.
- **Receivables Collection:** Accounts receivable collection efficiency was notably strong between 2021-2023 (DSO stable around 13 days), but showed signs of slowing in 2024 (DSO increased to 16.5 days).

- **Supplier Payments:** Tesla significantly accelerated its payment cycle to suppliers after 2022 (DPO decreased from a range of 68-70 days down to 46.6 days in 2024). While potentially improving supplier relationships, this reduces a source of short-term, interest-free financing.
- **Asset Utilization:** Total Asset Turnover reached its peak in 2022 at 0.99, indicating highly efficient use of assets to generate revenue during that high-growth year. The ratio subsequently declined to 0.80 by 2024, suggesting lower efficiency. This was likely impacted by significant asset base expansion ('Historical BS.csv') outpacing the now-slowing revenue growth ('Historical IS.csv').
- **Cash Conversion Cycle (CCC):** The CCC shifted from negative territory (implying suppliers were effectively financing operations) in 2020-2021 to increasingly positive ground, reaching nearly 15 days in 2024. This lengthening cycle – driven primarily by faster payments to suppliers (lower DPO) and, to a lesser extent, slower inventory turnover compared to 2021 levels – implies a growing requirement for working capital investment.

DuPont Analysis

The DuPont framework disaggregates Return on Equity (ROE) into constituent components to provide deeper insights into the drivers of shareholder returns.

$$\text{ROE} = \underbrace{\left(\frac{\text{Net Income}}{\text{Revenue}}\right)}_{\substack{\text{Net Profit}\\ \text{Margin}}} \times \underbrace{\left(\frac{\text{Revenue}}{\text{Total Assets}}\right)}_{\substack{\text{Total Asset}\\ \text{Turnover}}} \times \underbrace{\left(\frac{\text{Total Assets}}{\text{Total Equity}}\right)}_{\substack{\text{Financial}\\ \text{Leverage}}}$$

Table 5: DuPont Decomposition of ROE (2020-2024)

Component	2020	2021	2022	2023	2024
Net Profit Margin (using EAT*)	2.3%	10.3%	15.4%	15.5%	7.3%
Total Asset Turnover	0.60	0.87	0.99	0.91	0.80
Financial Leverage	2.20	1.97	1.79	1.68	1.66
Calculated ROE	**3.0%**	**17.5%**	**27.4%**	**23.6%**	**9.7%**

**EAT = Earnings After Tax (Net Income). Components sourced from 'FA Measures.csv'. Calculated ROE may differ slightly from direct calculation due to rounding in components.*

Insights and Comments:

- **Drivers of Peak ROE (2022):** The exceptional ROE achieved in 2022 (27.4%) was primarily driven by the confluence of peak Net Profit Margin (15.4%) and peak Total Asset Turnover (0.99), occurring while Financial Leverage continued its downward trend (1.79).
- **Drivers of ROE Decline (2022-2024):** The subsequent dramatic fall in ROE by 2024 (to 9.7%) was predominantly caused by the sharp deterioration in Net Profit Margin (more than halved from 15.4% to 7.3%). A moderate decrease in Asset Turnover also contributed negatively, while the slight continued decrease in Financial Leverage played a less significant role in the overall ROE reduction.

- **Strategic Impact Reflection:** The analysis period reflects a strategic evolution: from leveraging growth (characterized by higher leverage and lower margins pre-2020) towards enhancing operational efficiency and margins (2020-2022), subsequently shifting into a phase marked by margin erosion likely due to competitive dynamics and pricing strategies (2023-2024). The significant reduction in financial leverage, while improving the company's risk profile, structurally dampened ROE compared to what earlier leverage levels might have produced.

Summary of Financial Analysis

Tesla's financial trajectory over the 2020-2024 period reveals a transition from rapid, margin-expanding growth towards a more challenging operational phase. This later phase is characterized by slowing revenue growth, significant pressure on profit margins, and stabilizing (though still relatively low compared to 2020) financial leverage. While liquidity and solvency metrics improved markedly from 2020 levels and remain indicative of a healthy financial position, the declining trends in profitability and efficiency ratios since the 2022 peak underscore the emergence of increasing competitive and operational headwinds. It is also pertinent to note the high tax benefit in 2023 temporarily inflated net profit margins relative to operational performance that year. Concurrently, the lengthening cash conversion cycle points towards increasing working capital requirements for the business.

3 Corporate Lifecycle and Financial Plan Assessment

This section evaluates Tesla's current position within the corporate lifecycle framework. It subsequently outlines and critiques the key assumptions underpinning the financial plan developed for the 2025E-2029E period, considering historical performance alongside recent strategic challenges and market dynamics.

Company Lifecycle Stage

Pinpointing Tesla's precise lifecycle stage presents a complex challenge, reflecting its diversified business model and a rapidly evolving competitive landscape.

- **Transitioning Core Business:** Financial data through 2024 suggests the core automotive business is transitioning from a phase of exponential growth towards maturity. Key indicators include sharply decelerating revenue growth (comparing 51% in 2022 versus 0.9% in 2024) and profitability metrics peaking in 2022 before declining significantly by 2024. This pattern typically indicates increasing market saturation and intensified competition.
- **Emerging Concerns (Post-2024 Data):** More recent performance data, particularly from Q1 2025, amplifies these concerns. Significant year-over-year declines in Q1 2025 automotive revenue and delivery volumes occurred despite incentive programs, suggesting that price reductions failed to adequately stimulate demand. Intensifying competition, especially from players like BYD, continues to impact market share. Furthermore, potential brand erosion, strategic ambiguities, leadership controversies, and a possibly aging product cycle introduce additional risks, hinting at a challenging maturity phase that could potentially verge on decline if not managed effectively.
- **Segment Divergence:** In contrast, the Energy Generation and Storage segment exhibits strong growth dynamics. Q1 2025 saw year-over-year revenue growth of 67% for this segment, accompanied by record Powerwall deployments. This suggests the Energy division operates in an earlier, high-growth phase of its lifecycle.
- **First-Mover Advantage and Accelerated Lifecycle:** Tesla leveraged a potent first-mover advantage, effectively creating the market for desirable, high-performance electric vehicles and shifting public perception away from utilitarian concepts towards aspirational products without significant range anxiety. However, this very success validated the EV market potential, dramatically accelerating the entry of numerous competitors. Established automakers and new entrants rapidly saturated the market, leading to intense price competition (particularly from lower-cost Chinese manufacturers) and a wider array of product choices. Consequently, Tesla appears to have traversed the growth and early maturity phases of its core automotive business at a much faster pace than typical industrial firms, encountering mature-market challenges sooner than might have been anticipated.
- **Conclusion:** Tesla currently stands at a strategic crossroads. Its core Automotive segment is demonstrably past peak growth and entering a challenging maturity phase. Concurrently, the Energy segment remains in a high-growth stage, while future ventures like AI and Robotics are

still nascent. This results in a complex, blended lifecycle profile across the company, further complicated by the accelerated evolution of its primary market.

Financial Plan Assessment (2025E-2029E)

The financial plan developed projects performance from 2025 through 2029. These projections are primarily grounded in historical trends observed between 2020-2024 and specific modeling assumptions. However, these assumptions may not fully capture the negative momentum and significant market shifts observed more recently, necessitating a critical evaluation.

Key Assumptions and Critique:

- **Revenue Projection:**
  - Assumption: Modeled under a "NEUTRAL" scenario, anticipating modest, fluctuating annual growth rates (-2.5% for 2025E, +5.0% for 2026E, +8.0% for 2027E, and +6.0% for 2028E/29E).
  - Critique: This forecast appears optimistic when juxtaposed with recent performance (e.g., -9% YoY revenue decline in Q1 2025) and the intensifying competitive environment (e.g., BYD's growth). It potentially underestimates the challenges facing the automotive segment, including market share erosion and brand perception issues impacting core customer demographics. Continued reliance on regulatory credits introduces variability. The failure of recent price cuts to boost Q1 volume further questions the baseline growth assumptions.
- **Income Statement Projections:**
  - Assumption: Key cost lines (Cost of Goods Sold, SG&A, Other Operating Expenses) are projected based on their mean percentage of revenue observed during the 2020-2024 period. This methodology yields a stable projected Operating Margin of approximately 14.7%. Interest Expense is held constant at $350M annually. Taxes are calculated based on an assumed Effective Tax Rate.
  - Critique: Projecting costs based on historical averages ignores the significant margin compression witnessed recently (the actual Operating Margin was only 2.1% in Q1 2025). This approach likely overestimates future profitability if intense price competition persists. Assuming constant interest expense presupposes stable debt levels and interest rates, which may not hold true.
- **Working Capital Projections:**
  - Assumption: Accounts Receivable, Inventory, and Accounts Payable balances are projected based on historical average turnover ratios from the 2020-2024 period. Cash balance is projected at 16.52% of Sales, as noted in the model workings.
  - Critique: This relies on the assumption of stable turnover ratios, despite observed fluctuations in recent years (e.g., the deliberate reduction in Days Payables Outstanding, and inventory variations driven by supply/demand mismatches). Constant turnover ratios may not

accurately reflect future operational dynamics. The robustness of projecting cash purely as a fixed percentage of sales also warrants careful consideration for future refinements.

- **Investment Projections:**
  - Assumption: Capital Expenditures (Capex) and Depreciation are projected to grow based on their historical average year-over-year percentage increases (approximately 22.0% and 23.5% respectively). While a qualitative note mentions a potential shift towards Energy investment, the quantitative projection employs an overall historical average.
  - Critique: Extrapolating future investment needs based solely on aggregate historical averages is unlikely to accurately reflect strategic capital allocation decisions.
    * This limitation is partly due to the lack of readily available segmented CapEx data.
    * Qualitatively, a strategic investment pivot seems increasingly necessary. Continuing heavy investment in the B2C automotive segment appears questionable given market saturation, intense competition, product delays (e.g., Cybertruck ramp-up, autonomy progress versus competitors like Waymo/Zoox), and brand/reputation challenges.
    * A strategic shift towards B2B opportunities (Tesla Semi, potential bus platforms) and bolstering the Energy division (potentially repurposing manufacturing capacity) seems more aligned with current market realities and observed segment growth trends.
    * This extrapolation also potentially conflicts with recent company statements emphasizing improving Capex efficiency through optimization of existing production lines.

    The allocation of future investment capital is a critical strategic variable poorly captured by these assumptions. While Tesla's historical focus on R&D and quality has been a strength, the *direction* of future investment is paramount.

Plan Summary and Strategic Considerations:

In summary, the financial plan presents a scenario potentially disconnected from Tesla's current operational realities and market position. Its predictive validity heavily relies on the company successfully reversing recent negative trends and adeptly navigating several major strategic challenges.

Key strategic issues that cloud the reliability of the plan include:

- **Brand Identity and Positioning:** An increasing ambiguity exists between Tesla's luxury origins and its mass-market aspirations. This risks diluting its premium status (unlike Apple's rigorously maintained luxury positioning) and fostering a confused brand identity.
- **Reputational Risk and CEO Association:** The brand remains strongly associated with its CEO, creating volatility linked to his public persona and potentially alienating segments of the original core customer base (often characterized as affluent, environmentally conscious liberals). This is particularly problematic given Tesla's historically low marketing expenditure. Attempts to appeal to alternative demographics may prove misaligned or insufficient.
- **Intensified Competitive Pressure:** The emergence of highly effective, lower-cost competitors (particularly from China, e.g., BYD) fundamentally alters market dynamics, eroding Tesla's pricing power and challenging its market share, especially in key international markets.

- **Perceived Innovation Lag:** Notable delays in bringing key announced projects (like the Cybertruck at scale, and commercially viable Robotaxis) to market relative to competitor timelines raise concerns about future growth drivers and maintaining technological leadership.

Overall, the plan's underlying assumptions, rooted in a prior period of stronger growth and wider margins, likely overstate future performance, particularly concerning automotive revenue and overall profitability. They may also misjudge the optimal allocation of capital going forward. A successful navigation of the current challenges would likely necessitate significant strategic shifts – potentially involving a greater emphasis on the Energy division and B2B automotive opportunities relative to B2C vehicle sales – which are not fully reflected in these projections.

4 Determining the Weighted Average Cost of Capital (WACC)

The Weighted Average Cost of Capital (WACC) represents the average rate of return a company is expected to provide to all its security holders (debt and equity) to compensate them for the risk of investing. It is a fundamental component in Discounted Cash Flow (DCF) valuation, serving as the discount rate for future free cash flows. The standard formula for WACC is:

$$\text{WACC} = \left(\frac{E}{V} \times K_e\right) + \left(\frac{D}{V} \times K_d \times (1 - T)\right)$$

Where:

- E = Market Value of Equity (Market Capitalization)
- D = Market Value of Debt. For this calculation, the Book Value of Total Debt is used as a proxy, a common simplification when market values are not readily available.
- $V = E + D$ = Total Market Value of the Firm's Capital (using the proxy for D)
- K_e = Cost of Equity
- K_d = Pre-Tax Cost of Debt
- T = Corporate Tax Rate

The following WACC calculation utilizes market value weights for equity and debt (using the book value proxy for debt), focusing on data corresponding to the most recent full year available (2024) to establish the appropriate discount rate for the valuation.

Inputs for WACC Calculation (Year 2024)

The key inputs derived from the underlying analysis for the year 2024 are summarized below:

Table 6: WACC Inputs (Year 2024)

Input Component	Value
Market Value of Equity (E)	\$1,300 billion
Market Value of Debt (D - Proxy)	\$19.368 billion
Total Value ($V = E + D$)	\$1,319.368 billion
Weight of Equity (E/V)	98.53%
Weight of Debt (D/V)	1.47%
Risk-Free Rate (R_f)	4.58%
Equity Risk Premium (ERP)	4.00%
Levered Equity Beta (β)	2.58
Pre-Tax Cost of Debt (K_d)	1.81%
Corporate Tax Rate (T)	25.0%

Cost of Equity (K_e) Calculation

The Cost of Equity (K_e) is estimated using the Capital Asset Pricing Model (CAPM), which links expected return to systematic risk:

$$K_e = R_f + \beta \times \text{ERP}$$

Substituting the 2024 input values:

$$K_e = 0.0458 + 2.58 \times 0.0400$$

$$K_e = 0.0458 + 0.1032$$

$$K_e = 0.1490 \text{ or } \mathbf{14.90}\%$$

After-Tax Cost of Debt ($K_d \times (1 - T)$) Calculation

The After-Tax Cost of Debt reflects the tax shield benefit associated with interest expense deductibility:

$$\text{After-Tax } K_d = K_d \times (1 - T)$$

Using the 2024 inputs:

$$\text{After-Tax } K_d = 0.0181 \times (1 - 0.25)$$

$$\text{After-Tax } K_d = 0.0181 \times 0.75$$

$$\text{After-Tax } K_d \approx 0.0136 \text{ or } \mathbf{1.36}\%$$

WACC Calculation (Based on Market Values - 2024)

Combining the calculated components using the WACC formula:

$$\text{WACC} = \left(\frac{E}{V} \times K_e\right) + \left(\frac{D}{V} \times \text{After-Tax } K_d\right)$$

$$\text{WACC} = (0.9853 \times 0.1490) + (0.0147 \times 0.0136)$$

$$\text{WACC} \approx 0.14681 + 0.00020$$

$$\text{WACC} \approx 0.1470 \text{ or } \mathbf{14.70}\%$$

This result aligns with the WACC calculated in the accompanying spreadsheet analysis based on 2024 market values.

Commentary on WACC Inputs and Result

Key observations regarding the WACC calculation and its components include:

- **Capital Structure Weights:** Employing market value weights is the standard approach for WACC. Given Tesla's very high market capitalization relative to its book debt (used as a proxy for market value), equity constitutes the vast majority of the firm's capital structure weighting (98.53%).

- **Cost of Equity Dominance:** Consequently, the overall WACC is heavily influenced by the Cost of Equity (K_e), calculated at 14.90%. Variations in K_e inputs will have a pronounced impact on the final WACC.

- **Equity Beta (β) Impact:** The high Levered Equity Beta of 2.58 indicates that Tesla's stock is perceived by the market as substantially more volatile than the broader market average. This significantly elevates the calculated Cost of Equity and, therefore, the WACC. Documenting the specific source and methodology used for Beta determination (e.g., regression period, market index) is important context for this input.

- **Cost of Debt (K_d) Consideration:** The implied Pre-Tax Cost of Debt, derived from Interest Expense divided by Total Debt for 2024, is 1.81%. While this historical rate appears low relative to potential current market borrowing costs for Tesla, its impact on the overall WACC is minimal due to the very low weight of debt in the capital structure (1.47%). Alternative approaches like using the Yield-to-Maturity (YTM) on existing bonds could provide a more market-based estimate, but would likely not materially change the final WACC given the low debt weighting.

- **Market Condition Assumptions (R_f, ERP):** The Risk-Free Rate (4.58%) and Equity Risk Premium (4.00%) are critical inputs reflecting assumed market conditions at the end of 2024. These are inherently time-sensitive and subject to change based on macroeconomic factors.

- **Tax Rate (T) Assumption:** The calculation uses an assumed Corporate Tax Rate of 25.0

- **Resulting WACC (14.70%):** The final calculated WACC of 14.70% is relatively high, primarily driven by Tesla's high market risk as captured by its Beta. This rate serves as the discount factor applied to the projected free cash flows in the subsequent DCF valuation.

5 Valuation Analysis

This section presents the valuation estimation for Tesla, Inc., based on the financial analysis performed. The primary approach utilizes the Discounted Cash Flow (DCF) method, focusing on Free Cash Flow to Firm (FCFF). Insights from historical Economic Value Added (EVA) are also included.

Projected Free Cash Flow to Firm (FCFF)

The DCF valuation relies on projecting future cash flows. The projected FCFF values for the forecast period 2025E-2029E, derived from the financial plan assumptions, are shown below. These projections are influenced by the revenue, margin, and investment assumptions detailed in Section 3.

Table 7: Projected Free Cash Flow to Firm (FCFF) (Millions USD)

Year	2025E	2026E	2027E	2028E	2029E
Projected FCFF	11,866.52	7,953.47	7,248.86	6,915.74	6,262.09

Source: Financial plan projections derived from analysis.

Discounted Cash Flow (DCF) Valuation Results

The DCF analysis performed involved discounting these projected FCFFs and a calculated Terminal Value back to their present value. Key components from this analysis are:

- **Discount Rate (WACC):** A Weighted Average Cost of Capital of **14.70%** was used, as determined in Section 4.
- **PV of Explicit Period FCFFs:** The sum of the present values of the projected FCFFs (2025E-2029E) amounts to **$29,119.40 million**.
- **PV of Terminal Value:** A Terminal Value was calculated assuming a constant long-term growth rate (g) of **3.8%**. The present value of this Terminal Value amounts to **$35,919.40 million**.
- **Enterprise Value (EV):** Combining the present values of the explicit period FCFFs and the Terminal Value yields an estimated Enterprise Value of **$65,038.80 million**.

Estimated Equity Value

Adjusting the calculated Enterprise Value for debt and cash provides an estimate of the Equity Value attributable to shareholders. Based on the analysis performed:

- Enterprise Value = $65,038.80 million
- Total Debt (end 2024) = $19,368 million
- Cash and Cash Equivalents (end 2024) = $17,037 million

After making these adjustments and incorporating any other model-specific considerations from the analysis, the resulting estimated Equity Value derived from this DCF model is **$110,738.10 million**.

Perspective from Economic Value Added (EVA)

The analysis also included calculating historical Economic Value Added (EVA) from 2020 to 2024. EVA measures the economic profit generated above the cost of capital. The results showed:

- Negative EVA in 2020.
- Positive EVA in 2021, peaking strongly in 2022, indicating value creation during this period relative to the cost of capital.
- A return to negative EVA in 2023 and 2024, suggesting that during these years, returns generated did not fully cover the estimated cost of capital.

This pattern highlights the fluctuating nature of Tesla's economic profitability over the recent historical period.

Valuation Commentary

The valuation analysis provides several key takeaways regarding Tesla's estimated intrinsic value versus its market perception:

- **Intrinsic vs. Market Value Comparison:** The most significant finding is the substantial difference between the Equity Value derived from this DCF analysis ($110.7 billion) and Tesla's market capitalization at the end of 2024 ($1,300 billion). The calculated intrinsic value represents approximately 8.5% of the market value observed at that time.
- **Role of Key Assumptions:** The DCF result of $110.7 billion is directly tied to the specific assumptions employed in this analysis. Namely, the projected FCFFs (stemming from the revenue and profitability forecasts in the financial plan), the WACC of 14.70
- **Interpreting the Valuation Gap:** The large gap between the DCF value and the market value suggests that the market's assessment of Tesla incorporates factors or expectations beyond the scope of this specific cash flow projection model. Investors appear to be pricing in substantial future growth, potentially from advancements in AI, autonomous driving, robotics, and further energy sector expansion, which are difficult to quantify accurately in near-term FCFF forecasts.
- **Limitations of DCF for High-Growth/Disruptive Companies:** This situation highlights a common challenge: traditional DCF models, while fundamentally sound, often struggle to capture the full perceived value of companies like Tesla, where market valuation is heavily driven by long-term disruptive potential, technological leadership expectations, and powerful brand narratives, rather than solely by predictable, near-term financial performance. The historical negative EVA in recent years, contrasted with the high market value, further emphasizes this disconnect between reported economic profitability and market expectations.
- **Concluding Thought:** While this DCF valuation provides an estimate of intrinsic value based on a defined set of operational forecasts and financial assumptions, it predominantly underscores the degree to which Tesla's market value is influenced by factors beyond conventional, quantifiable near-term cash flows. Explaining the full market capitalization requires acknowledging the significant weight investors place on long-term, potentially transformative growth opportunities.

Bibliography

References

[1] Yahoo Finance. *Tesla, Inc. (TSLA) Stock Price, News, Quote & History*. Retrieved May 1, 2025, from https://finance.yahoo.com/quote/TSLA/

[2] Tesla Investor Relations. *Quarterly Disclosure*. Retrieved May 1, 2025, from https://ir.tesla.com/#quarterly-disclosure

[3] Financial Modeling Prep. *Financial Data APIs & Stock Market Data*. Retrieved May 1, 2025, from https://site.financialmodelingprep.com/

[4] Damodaran, Aswath. *Damodaran Online: Homepage*. Stern School of Business, NYU. Retrieved May 1, 2025, from https://pages.stern.nyu.edu/~adamodar/New_Home_Page/home.htm

[5] Damodaran, Aswath. *Automobile Industry Data Spreadsheet (Auto2021.xlsx)*. Stern School of Business, NYU. Retrieved May 1, 2025, from https://www.stern.nyu.edu/~adamodar/pc/blog/Auto2021.xlsx

[6] Damodaran, Aswath. (2023, January). *Tesla in 2023: A Return to Reality, A Start-up Pricing, or a Settling Story?*. Musings on Markets Blog. Retrieved May 1, 2025, from https://aswathdamodaran.blogspot.com/2023/01/tesla-in-2023-return-to-reality-start.html

[7] Damodaran, Aswath. (2018, June). *Twists and Turns in the Tesla Story: The Boring Company Interlude!*. Musings on Markets Blog. Retrieved May 1, 2025, from https://aswathdamodaran.blogspot.com/2018/06/twists-and-turns-in-tesla-story-boring.html

[8] Damodaran, Aswath. (2021, November). *Tesla's Trillion Dollar Moment: A Valuation Revisit!*. Musings on Markets Blog. Retrieved May 1, 2025, from https://aswathdamodaran.blogspot.com/2021/11/teslas-trillion-dollar-moment-valuation.html

[9] Damodaran, Aswath. (2017, August). *A Tesla 2017 Update: The Disruptive Force is Strong With This One!*. Musings on Markets Blog. Retrieved May 1, 2025, from https://aswathdamodaran.blogspot.com/2017/08/a-tesla-2017-update-disruptive-force.html