Tesla, Inc. Business Analysis

Company Introduction

History:
Tesla, Inc. was founded in 2003 by engineers Martin Eberhard and Marc Tarpenning, with Elon Musk joining shortly after as an early investor and later becoming the company's CEO. Tesla revolutionized the automotive industry by focusing on electric vehicles (EVs), sustainability, and energy solutions. The company gained recognition with the launch of its first car, the **Tesla Roadster (2008)**, followed by the **Model S (2012), Model X (2015), Model 3 (2017), and Model Y (2020)**.

Current Operations:
Tesla specializes in:

- **Electric Vehicles (EVs):** Model S, Model X, Model 3, Model Y, and the recently introduced Cyber Truck and Semi.
- **Energy Solutions:** Solar panels, solar roof tiles, and Powerwall battery storage systems.
- **Autonomous Driving & AI:** Tesla's Full Self-Driving (FSD) software and advanced driver-assistance systems.
- **Supercharger Network:** A global network of fast-charging stations.

Tesla operates **manufacturing facilities** in the U.S. (Fremont, California; Texas), China (Shanghai Gigafactory), Germany (Berlin Gigafactory), and more planned locations.

Macroeconomic Environment

Tesla has grown significantly through **organic expansion and acquisitions**. The company expands by scaling production, opening gigafactories, and innovating EV technology. Some notable acquisitions include **SolarCity (2016)** to integrate solar energy and **Maxwell Technologies (2019)** for battery innovations.

The EV market is driven by **government incentives, rising fuel prices, and a push for sustainability**, benefiting Tesla. However, challenges include **rising raw material costs, supply chain issues, and increasing competition**.

Industry Competitors & Market Share

Tesla faces competition from both legacy automakers and emerging EV companies, including:

- **Traditional automakers:** Ford (Mach-E, F-150 Lightning), General Motors (Chevy Bolt, Hummer EV), Volkswagen (ID series), Toyota, and Hyundai.

- **Pure EV companies:** Rivian, Lucid Motors, Nio, and BYD (China's leading EV brand).

Market Share:
As of 2024, Tesla remains the global **EV market leader**, but its market share is shrinking due to increased competition. In **2023**, Tesla held about **18-20% of the global EV market**, with BYD and Volkswagen gaining ground

Ratio and Valuation Analysis:

Tesla's financial performance in 2024 reflects its liquidity position, profitability, and capital structure:

Liquidity Ratios:

- **Current Ratio:** At 2.02, Tesla had $2.02 in current assets for every $1 of current liabilities, indicating a solid ability to cover short-term obligations.

- **Quick Ratio:** With a quick ratio of 1.61, excluding inventory, Tesla had $1.61 in liquid assets for every $1 of current liabilities, suggesting strong immediate liquidity.

- **Cash Ratio:** A cash ratio of 0.56 means Tesla held $0.56 in cash and cash equivalents for each $1 of current liabilities, highlighting a moderate cash reserve.

Profitability Metrics:

- **Gross Profit Margin:** Declined from 26% in 2022 to 17.8% in 2024, indicating increased production costs or pricing pressures.

- **Operating Profit Margin:** The downward trend mirrored the gross margin decline, suggesting rising operational costs not offset by revenue growth.

- **Return on Equity (ROE):** Experienced a sharp decline by 2024, reflecting reduced profitability relative to shareholder equity.

- **Return on Sales (ROS):** At 7.94%, Tesla earned 7.94 cents in operating profit per dollar of revenue in 2024, after covering operating costs but before interest and taxes.

- **Return on Investment (ROI):** A steep drop in 2024 points to lower net income and possibly increased invested capital in new facilities or technology.

Valuation and Capital Structure:

- **Price-to-Earnings (P/E) Ratio:** Investors paid $188.27 for every $1 of Tesla's earnings in 2024, indicating high market expectations.

- **Debt-to-Equity Ratio:** At 0.18, Tesla used $0.18 of debt for every $1 of equity, suggesting a conservative use of leverage.

Sustainable Growth Rate (SGR):

Calculated as ROE multiplied by (1 – Dividend Payout Ratio). Given Tesla's dividend payout ratio is zero (as Tesla does not pay dividends), the SGR equals the ROE.These figures provide insight into Tesla's financial health in 2024, highlighting areas of strength and potential concern.

CAPM (Capital Asset Pricing Model):

- **Beta:** 0.64

- **Market Return (S&P 500):** 12.58%

- **CAPM Cost of Equity:** 9.54%

Interpretation:
Tesla's **beta** indicates its stock is less volatile than the market. A **cost of equity of 9.54%** implies investors expect that return to compensate for the risk of owning Tesla shares. However, the very low **R-squared (0.0018)** suggests Tesla's returns are not well explained by market movements, weakening the predictive power of the CAPM in this case.

WACC (Weighted Average Cost of Capital):

- **WACC:** 9.41%

- **Free Cash Flow (FCF):** $3.58 billion

- **Intrinsic Value (per share):** $21.39

Interpretation:
Using a DCF model with the above WACC and FCF, Tesla's **intrinsic value per share** is estimated at **$21.39**. This figure is grounded in current operating cash flows and assumes a long-term steady growth.

Comparison to Market Price:

- **Current Market Price:** $239.43
- **DCF Implied Undervaluation Ratio:** 239.43 / 21.39 ≈ **11.2x**

Interpretation:
The market is pricing Tesla at **over 11 times its intrinsic value** based on this fundamental model. Some reasons for this is:

High Growth Expectations:
The DCF model uses today's cash flows, but the market is looking far ahead — betting on **massive future growth** in AI, autonomous vehicles, energy solutions, and robotics.

Speculative Sentiment and Brand:
Tesla has become a cultural and tech icon. Retail investors and institutional hype often drive prices far beyond intrinsic calculations.

Optionality and Innovation Premium:
Tesla is not just a car company. The market may be pricing in *optionality* — possible future businesses like **robo-taxis, AI chips, energy platforms**, etc., which are **not reflected in traditional DCF models**.

Weak CAPM Fit:
The **low R-squared (0.0018)** suggests Tesla's returns don't follow the market closely. That undermines the CAPM assumptions and indicates Tesla behaves more like a **speculative or unique asset** rather than a market-driven equity.

Reinvestment Phase:
Tesla is still **reinvesting heavily**. Free Cash Flow is not optimized yet, and thus, current cash flows might **underestimate** its long-term earning potential.

Technical Analysis

Summary

The Monte Carlo simulation conducted in the notebook models **Tesla's stock price behavior over a 30-day trading horizon**, based on historical data (2014–2024). The analysis provides insights into Tesla's **volatility, potential risks, and forecasted price movement.**

Key Observations from Tesla's Simulation:

The simulation uses 10 years of Tesla's closing price data to estimate the drift (average return) and standard deviation (volatility). This long-term data helps reflect Tesla's **high-growth yet volatile market behavior**. Using **100 simulation trials**, the model generates multiple future price paths for Tesla's stock. The paths show a **wide spread of potential outcomes**, reflecting the stock's historical volatility.

The simulation begins from Tesla's most recent closing price, anchoring all future paths to current market conditions. Some simulations show **sharp upward trends**, consistent with Tesla's historical surges, while others predict declines, capturing the **risk-reward profile typical of Tesla stock**.

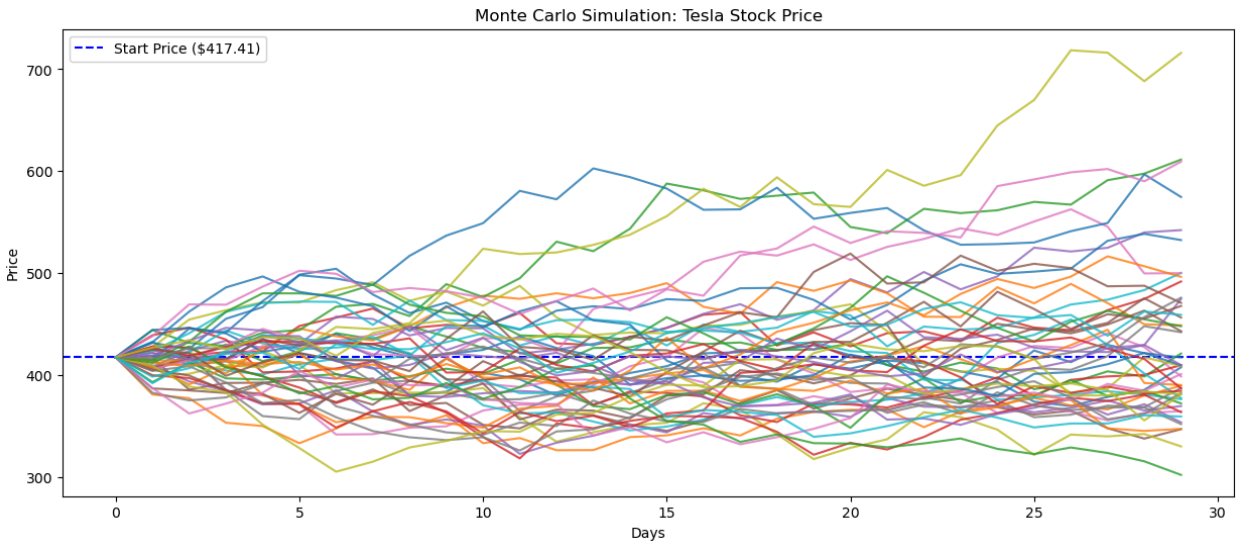
Performance Insight:

- **High Volatility Reflected:** The broad range of simulated prices highlights Tesla's **volatile nature**, a characteristic driven by innovation cycles, competitive EV landscape, and broader market sentiment.

- **No Guaranteed Direction:** While some price paths show growth, others indicate losses, reinforcing that **past performance does not ensure future results**, a key takeaway for investors.

- **Probabilistic Outlook:** The simulation doesn't give a single forecast but a distribution of possibilities, which is more realistic for a stock like Tesla, which often reacts strongly to news, earnings, or global trends.

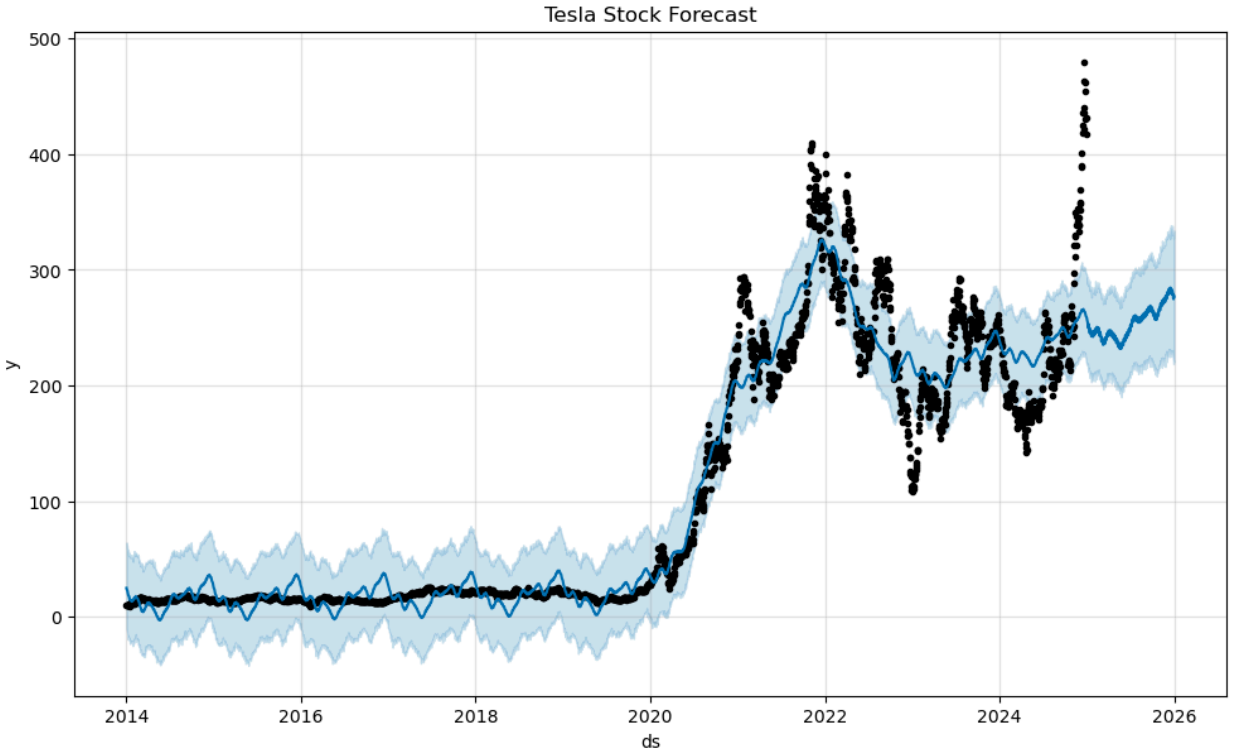
Monte Carlo:



Conclusion:

The Monte Carlo simulation underscores Tesla's **dynamic and uncertain short-term performance**. For investors, this analysis highlights the importance of factoring in **volatility and risk** when considering short-term positions in Tesla stock.

Tesla fb prophet stock forecast:



Conclusion:

The **Prophet forecast** supports a **moderate upward trend** with **high uncertainty**, reinforcing that Tesla's future stock performance is difficult to predict with precision. While the model anticipates growth, it doesn't reflect speculative spikes or disruptive breakthroughs, suggesting the market may be pricing in far more **optimism and optionality** than fundamentals alone would justify.

Recommendations :

Is Tesla a Good Company to Invest In?

Yes, but with caution.
Tesla is fundamentally sound and operates in high-growth sectors (EVs, AI, energy). And as the

Return on Sales (7.94%) and **Gross Profit Margin (17.8%)** show the company is still generating profits, even under margin pressure. However, its **stock price is speculative and not supported by traditional financial metrics** like cash flow or earnings. The company has long-term growth potential but is **currently overvalued** by standard valuation methods.

Do We Expect Tesla to Grow in the Future?

Yes.
Tesla is positioned for long-term growth driven by Expansion into autonomous driving and robotics, Energy storage and solar markets, AI and custom chip development.
But growth may not follow a smooth path, it depends heavily on **execution**, **innovation**, and **regulatory landscapes**.

Buy, Sell, or Hold?

Hold: If your client already owns Tesla, it's worth **holding** for potential long-term upside — but they should be **prepared for volatility**.

Buy (speculatively): Risk-tolerant investors can **buy modestly** to gain exposure to potential exponential growth, understanding it's **not justified by current financials**.

Sell: Conservative or income-focused investors may consider **reducing exposure** due to the **disconnection from intrinsic value**.

REFERENCE

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Electric Cars, Solar & Clean Energy | Tesla Canada

Gordon Growth Model - What Is It, Formula, Examples, Assumption