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Exploring the Behavior of Tesla Stock in the Face of Public Scrutiny: A Time-Series Case Study

Imagine This Scenario

You're a data scientist working for an investment research group during one of the most pivotal economic and political periods of the decade. Tesla, one of the world's most influential companies, is making headlines daily, not just because of its products, but because of the unpredictable public behavior of its CEO, Elon Musk. In the span of just a year, Musk inserted himself into the 2024 election cycle, founded the controversial Department of Government Efficiency (DOGE), and then abruptly stepped out of the political spotlight in what many believed was a carefully designed publicity maneuver. Markets reacted, voters reacted, and analysts everywhere scrambled to understand what all of this meant for Tesla's trajectory.

Now you have been brought in to help answer a question that investors, journalists, and policymakers have been arguing about for years: Does Musk's public behavior measurably impact Tesla's stock, and can we use historical data to forecast what happens next?

Your Mission

Using the data and tools provided in the case-study repository, your goal is to analyze ten years of Tesla stock prices and determine how its behavior changes around major Musk-related events. You will explore how these events align with market patterns, and then generate a 12-month forecast of future stock performance. The deliverable you produce will help your "investment team" understand whether Tesla's stock is driven more by long-term financial trends, or by the high-profile actions of one of the most polarizing CEOs of the 21st century.

Guiding Question

To what extent can time-series modeling reveal the influence of Elon Musk's public actions on Tesla's past, current, and future stock prices?

Why This Matters

In a society where corporations and government have become increasingly intertwined, understanding how CEO behavior interacts with financial markets is essential. This case study gives you a chance to step into a real-world analytical role: blending politics, economics, behavioral finance, and statistical modeling into one cohesive investigation.

Start Here

All data, scripts, and reproducible notebooks are in the GitHub repository linked below:
GitHub Repository: