Econ 409 Project (Heatmap)

Group Name: Data Mavericks

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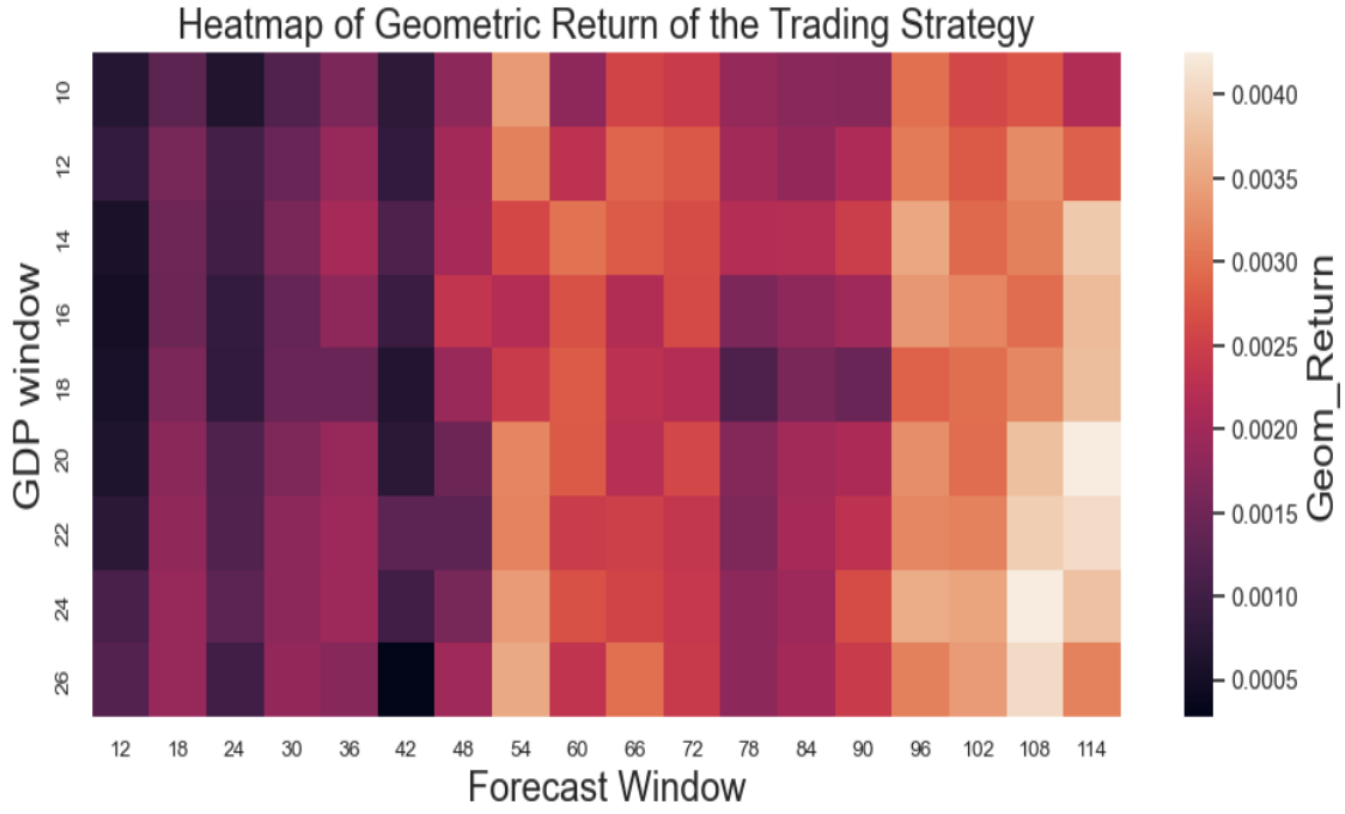
Project Overview

The project aims to develop and evaluate a trading strategy based on economic indicators and exchange rate predictions. Through rigorous data analysis, cleaning, transformation, and statistical modeling, we strive to implement a strategy that outperforms standard benchmarks.

Heatmap Details:

1. ***X-axis (Forecast Window):*** We utilize the X-axis to represent the forecast window, signifying the duration employed for predicting exchange rates. This axis allows us to explore various forecast windows during the analysis.
2. ***Y-axis (GDP Window):*** The Y-axis corresponds to the GDP window, reflecting the period used for calculating the output gap. This axis provides insights into different GDP window lengths considered in the evaluation.
3. ***Color Intensity****:* At each grid point on the heatmap, the color intensity conveys valuable information about the geometric return of the trading strategy. Darker colors indicate higher geometric returns, allowing us to visually identify regions associated with superior performance.
4. ***Geometric Return:*** This crucial metric serves as the yardstick for evaluating the trading strategy's performance. We rely on geometric return because it accounts for the compounding effect of returns over time, offering a comprehensive assessment of the strategy's effectiveness



Interpretation:

Our primary objective is to pinpoint the combination of hyperparameters that maximizes the geometric return, indicating the optimal performance of our trading strategy.

Location: The point on the heatmap exhibiting the highest geometric return serves as the best combination of hyperparameters.

Coordinates: We identify these coordinates (24 on the Y-axis for GDP window and 108 on the X-axis for the forecast window) as indicative of the selected optimal hyperparameters.

Conclusion:

The optimal combination, as revealed by the heatmap, is determined to be a GDP window of 24 paired with a forecast window of 108. This specific pairing stands out among the considered hyperparameter values, showcasing the highest geometric return for our trading strategy. It indicates a well-balanced configuration, effectively leveraging the GDP window's length for output gap calculation and the forecast window's duration for exchange rate prediction. Considering this outcome, for any forthcoming simulations or practical implementations of the trading strategy, our recommendation is to employ a GDP window of 24 alongside a forecast window of 108. This strategic combination is poised to offer the potential for maximizing returns, aligning with the insights derived from historical data and the performance of our trading strategy.