

Project Report

Introduction: The aim of this project is to demonstrate a comprehensive analysis and trading strategy using real-time data from financial markets. We utilize data from Polygon for obtaining currency pair prices and PyCaret for regression and classification tasks. The project is divided into two main parts: the first part focuses on regression and classification analysis, while the second part involves implementing a Long/Short (L/S) trading strategy on specific currency pairs.

Part 1: Regression and Classification Analysis

1.1 Data Collection: Currency pairs (CPs) including EURUSD, EURCHF, EURCAN, GBPEUR, GBPUSD, GBPCHF, GBCAN, USDCHF, USDCAN, and USDJPY are selected for analysis. Real-time data is fetched from Polygon for these pairs.

1.2 Regression: A regression model is built using the average mean price, volume, and other statistical features among the base CPs. Additionally, correlations with EURUSD and BTC are used as new features. This model aims to predict future price movements based on historical data.

1.3 Classification: GBPUSD and USDJPY are chosen for classification analysis. Each currency pair is classified as FORECASTABLE (F), NON-FORECASTABLE (N), or UNDEFINED (U) based on the RMSE values predicted. This classification helps in identifying pairs suitable for trading strategies.

Part 2: Long/Short Trading Strategy

2.1 Selection of Long/Short CPs: The slope of a 20-point univariable time series regression is used to select Long and Short currency pairs. This methodology helps in identifying pairs with favourable trends for trading.

2.2 Implementation of L/S Strategy: The L/S strategy is initiated at hour #5 and adjusted at subsequent hours, considering the ratio between USDJPY and GBPUSD. Trading positions are closed at hour #8.

2.3 Profit/Loss Calculation: Accounting is done to compute the Profit/Loss (P/L) of the L/S strategy based on the trading steps. A standard investment amount of \$100 is assumed for each step.

Conclusion: This project demonstrates a comprehensive approach to analyzing financial market data and implementing trading strategies using real-time information. Through regression, classification, and trading strategy implementation, valuable insights are gained into the dynamics of currency markets and potential trading opportunities. Continued refinement and optimization of these strategies can lead to improved performance and profitability in trading activities.