Quant Trading Plan

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1 Task Breakdown

1.1 Overview

- **To Do:** Read Lou and Polk (2021) to understand comomentum and its implications on momentum strategies.

1.2 Deliverables

1. Data Preparation.
2. Compute of a standard momentum factor.
3. Compute weekly Fama-MacBeth regressions.
4. Compute rolling comomentum measure.
5. Adjust momentum factor using comomentum.
6. Re-run the regressions with the adjusted factor.
7. Compare results with graphs and summary statistics (e.g., cumulative returns, annualised mean, standard deviation).

1.3 Data Preparation

Data Files:

- `US_Returns.csv` (weekly stock returns)
- `US_live.csv` (indicator for live/dead companies)
- `US_Dates.xlsx` (dates in YYYYMMDD format)
- `US_Names.xlsx` (names of stocks)
- `FamaFrench.csv` (Fama-French factor returns and risk-free rate)

Preprocessing:

- Align dates and stock identifiers across all files.
- Handle missing values: flag any missing data or "dead" stocks. Missing data for live stocks may indicate retrieval issues (e.g., adjusted close values from Yahoo Finance).

1.4 Compute Standard Momentum Factor

- Use a rolling window approach.
- For each stock and week, compute the momentum factor using returns from the previous 48 weeks, skipping the most recent 4 weeks.

1.5 Perform Fama-MacBeth Regressions (Initial Run)

Regression Setup:

- For each week, run a regression where:
  - Y = daily stock return.
  - X = lagged momentum factor.
- Only include stocks that are "live" and have non-missing return values.
- Store the regression coefficients (factor returns) from each weekly regression for later analysis.

1.6 Compute Comomentum

Rolling Regression for Each Stock:

- For each stock, use a 52-week rolling window to regress its returns on the three Fama-French factors (Mkt-RF, SMB, HML).
- Extract the regression residuals.
- Compute return correlations using these residuals, as described in Lou and Polk (2021), updating week by week.

1.7 Adjust the Momentum Factor Using Comomentum

Design the Adjustment:

- Analyze the correlation between comomentum and future momentum returns.
- Develop an adjustment mechanism (e.g., reducing exposure when comomentum is high and vice versa).
- Apply this adjustment to create an enhanced momentum factor for each stock.

1.8 Re-run Fama-MacBeth Regressions with the Adjusted Momentum Factor

- Replicate the regression procedure from the initial run.
- Store the new regression coefficients for comparison with the initial results.

1.9 Analyze, Visualize, and Report Results

Graphical Analysis:

- Plot the cumulative factor returns for both the standard and adjusted momentum strategies.

Statistical Comparisons:

- Compute annualized mean returns, standard deviations, Sharpe ratios, and other relevant statistics.

Report:

- Document the methodology, key assumptions, analysis results, and interpretations.
- Discuss the performance differences between the standard and adjusted momentum factors and their implications.