

FRE 7831 Course Project

1. Select security (stock, or ETF but **not SPY**) that has been traded at least 20 years, time period (at least 20 years ending in Feb 28, 2025) and download relevant daily adjusted closing prices from www.finance.yahoo.com. Put its ticker in the Class list. All student tickers must be different.
2. Provide statistics for your sample (mean, sigma, skewness, kurtosis, ACF).
3. Estimate the ARMA coefficients using `auto.arima()`. Check if the sample has statistically significant unit root and drift.
4. Implement three trading strategies:
 - Buy-and-Hold (B&H)
 - Time Series Momentum (TSM). Use daily returns and assume that lookback and look-ahead periods are 252 and 21 days, respectively.
 - Two-period Simple Moving Average (SMA). Choose the most profitable combo of the long/short SMA periods for entire sample: 63/15, 126/30, 252/63 and use it for #5.
5. Compare performance (returns, Sharpe, MDD) of TSM, SMA, and B&H for all 10-year periods within the chosen data sample. Check statistical significance of performance differences.
6. Write a detailed report and attach the source scripts as separate files (do not zip them). No output from console should be pasted in report. All results should be framed in tables. All files must have your names in the filenames.
7. Prepare a PowerPoint presentation on **not more than 7 slides** describing what security and time period you used, and your results obtained in ##2- 6.

Submit your PPT along with the report **before the midnight of Apr 29, 2025**. Be ready to present your PPT in class and answer my (and other students') questions during the last lecture **on Apr 30, 2025**. Those who won't be able to attend live presentation, let me know in advance.