Please conduct a portfolio analysis using the two datasets provided. The first dataset, *Assignment_2(StockReturn)*, provides monthly stock return for 7 companies between 2001 and 2021. The second dataset, *Assignment_2(Factors)*, contains the Fama-French 5 factors in the same period. Please follow the instructions below to complete this assignment. This assignment is due on **June 6th**. Please send me a file of your answers along with a code file at my school email address.

Please download the dataset here:
https://www.dropbox.com/s/zibav0hky0lr3oa/Assignment_2%28StockReturn%29.dta?dl=0
https://www.dropbox.com/s/ex5iz4d3uqxdrc0/Assignment_2%28Factors%29.dta?dl=0

In case you are not using STATA, below please find the labels for relevant variables:

Variable Names	**Labels**
permno	Permanent Number of Securities
ticker	Ticker Symbol
comnam	Company Name
ym	Year-Month
date	Date
prc	Price or Bid/Ask Average
vol	Volume
ret	Returns
shrout	Shares Outstanding (in thousands)
marketcap	prc*shrout
turnover	vol/shrout
mktrf	Market Premium
smb	Small minus Big
hml	High minus Low
rmw	Robust minus Weak
cma	Conservative minus Aggressive
rf	Risk-Free Rate

1. In the first step, please merge the two datasets using the variable "ym" as the link. No need to report anything.

2. First Part: Seeking Alpha
   i. Let's focus on **IBM** and **TSM** for the first part.
   ii. For each of the above stocks, please conduct times-series regressions for the stock return on 1) market premium factor; 2) Fama-French 3 factors; and 3) Fama-French 5 factors. Please run the times-series regressions using the Newey-West estimator with 12 lags. Please report and discuss the beta coefficients as well as the intercepts. What is the economic meaning for the intercepts?

3. Second Part: Turnover and Out-of-Sample Tests
   i. Let's focus on **MSFT** for the second part.
   ii. Theoretically, stocks with weaker liquidity have to compensate investors with higher returns. Let's now construct a model with turnover to predict returns.
   iii. Please conduct a times-series regression of stock return on the turnover ratio in the previous month using the Newey-West estimator with 12 lags. Please report the coefficient estimated, the *t*-statistic, and the corresponding *p*-value.
   iv. Now, let's compare two models, the turnover model and a random walk model. Please conduct rolling regression of return on turnover using a 24-month rolling window and use the coefficient estimated to construct the forecast. Please construct the random walk benchmark using the past-24-month average. Calculate the mean squared error of both models and compare which one is larger. Please discuss what it means to have a larger MSE.

4. Third Part: Portfolio Analysis
   i. In the last section, please use the entire 7 stocks.
   ii. Please construct 2 portfolios. The first portfolio is an **equal-weighted portfolio**. For the second portfolio, please allocate **62% of your wealth in AAPL, 14% in WMT, and 24% in XOM.** The second portfolio is the tangency portfolio using the information between 2001 and 2010.
   iii. Please conduct times-series regressions for the portfolio returns on 1) market premium factor; 2) Fama-French 3 factors; and 3) Fama-French 5 factors for two sample periods: 1) 2001 to 2010; and 2) 2011 to 2021. Report the alphas of the two portfolios under the 3 models and for both sample periods. What do you see? Again, please use the Newey-West estimator with 12 lags.