FIN 557 Problem Set 4

Due on 04/19/2023

Instruction: format your answers to includes SAS code, brief descriptions of the code, and output results in a single PDF file. For example, copy the SAS code and descriptions in a word document and add SAS results using Screenshot tools. Organize the answers by question numbers.

1) Download the data

CRSP Daily Stock

Data range: 01/01/2018 to 12/31/2018

Select PERMNO and search the entire database

Select SIC code and holding period return (PERMNO and DATE are default variables).

Add a conditional statement to filter rows with SICCD greater than or equal to 4000 and less than or equal to 5999

Named the data set (also available in Compass) and save it in a folder named hw4

2) Filter the data and create new variables

2.1) Use hw4.ret to perform the following tasks. Create a new variable named SIC3 which represents the first 3 digits of SICCD. Keep only observations with non-missing values in SICCD and year equal to 2018. Select DATE, PERMNO, RET, SICCD and SIC3 and save the results to a table named ret1.

Hint: use *year (DATE)=2018 in the WHERE clause and either the int() or floor() function to define SIC3*

2.2) Create a variable named FREQ that counts the number of unique stocks in the ret1 table. Report the value in FREQ

Hint: use *count (distinct PERMNO)*

2.3) Use the table ret1 to perform the following tasks. Create a variable named TRADAYS, which counts the number of days that each stock traded in the year of 2018. Rearrange the results in a descending order of TRADAYS and print out the first 10 observations using OUTOBS=10.

Hint: use *count (PERMNO) as TRADAYS and the GROUP BY clause*

2.4) Use the results in question 2.3 and the table ret1 to perform the following tasks. Create a variable named TRADAYS that counts the number of days each stock traded in 2018. Select DATE, PERMNO, RET, SICCD, SIC3 and TRADAYS. Exclude stocks that missed any trading days in 2018. Save the results to a table named ret2.

Hint: use *GROUP BY PERMNO* and *HAVING TRADAYS=*

2.5) Create a variable named FREQ that counts the number of unique stocks in the ret2 table. Report the value in FREQ

3) Calculate abnormal returns

3.1) Use the table ret2 to perform the following tasks. Create a variable named RET_IND that calculates the average return of each industry on a day. Create a variable named RET_N that counts the number of RET in each industry on a day. Use SIC3 to define industries. Only keep groups with RET_N greater than 30. Select DATE, PERMNO, RET, SICCD, SIC3, RET_IND and RET_N and save the results to a table named ret3. Use a PROC PRINT procedure to report the first 10 observations in table ret3.

Hint: use *GORUP BY SIC3, DATE and the HAVING clause*

3.2) Use the table ret3 to perform the following tasks. Create a variable named ABNRET that subtracts the daily industry average return (RET_IND) from individual stock return (RET). Select DATE, PERMNO, RET, SIC3, RET_IND and ABNRET and save the results to a table named ret4. Use a PROC PRINT procedure to report the first 10 observations in table ret4.

3.3) Use the table ret4 to perform the following tasks. Create a new variable named MONTH that extracts month from DATE column. Create a variable named ABNRET_N that counts the number of stocks with ABNRET greater than 0.01 in each month. Select MONTH and ABNRET_N. Report the results in a descending order of ABNRET_N.

Hint: use *sum(ABNRET>0.01) as ABNRET_N and the GROUP BY MONTH clause*