**Instructions for Data Analysis Assignment Part I**

**Purposes**: This Data Analysis Assignment will require you to

1. Screen stocks meeting certain criteria and extract historical price data from the Bloomberg terminal. A short instruction video of how to use relevant Bloomberg functions is posted in Moodle.

2. Calculate the stock’s returns, standard deviation, covariance with a market index, and the Sharpe ratio of a portfolio.

3. Apply the Single Index Model to estimate a stock’s beta, systematic risk, and nonsystematic risk.

**September 30:** Enter your 3 stocks in Google Sheets [https://docs.google.com/spreadsheets/d/1LUUlT4E9GS2sPELduYMhBk7F5QtWihVPoKwWjb9yyoo/edit#gid=0](https://docs.google.com/spreadsheets/d/1LUUlT4E9GS2sPELduYMhBk7F5QtWihVPoKwWjb9yyoo/edit%23gid=0%20) (or link through Moodle). There will be a 2-point deduction for each day of late submission. Your first two stocks can’t be exactly the same as someone else’s. It is first come, first get. **Check the Google Sheet before you pick the three stocks.** If someone has entered Stocks 1 and 2 in Google Sheets that are identical to your planned choices, **you** **must replace one of your initial two stocks**.

**October 31:** Submit Assignment I in Moodle. There will be a 2-point deduction for each day of late submission.

**Instructions**

1. You must have a Bloomberg login to do this assignment. Any web pages, free internet sources do not suffice. Read “How to create a terminal login” in Moodle. Since a new Bloomberg account needs 24 hours to get activated and there is a cap on the number of concurrent users, DO NOT wait until the due day of **September 30** to look for your stocks!
2. **Screening** to find three qualified stocks**. There will be a 5-point deduction for each unqualified item.**

Type **EQS** the equity screening function, in the command line, specify the criteria (see the underlined requirements below), and then click **WATC** in the bottom right of the screen to display the list of qualified stocks. All three stocks must have price data for **12/1/2014-12/31/2019**.

1. Stock 1 must be a large US value stock. Screening criteria: **S&P 500**, **PE** <=18, **dvd ind yld** (recent dividend yield) >=3%, **IPO** before 12/1/2014.
2. Stock 2 must be a small US quality stock. Screening criteria: **Index: RTY** (Russell 2000), **ROE**>=30% for the most recent fiscal year, **total debt to total equity** <=20% for the most recent fiscal year, current **PE**>0, **IPO** before 12/1/2014.
3. Security 3 can be a foreign or domestic company, as long as it has price data for 2014-2019.
4. Type **DES** in the command line to obtain the stock information. Tabulate your findings in Word or Excel Worksheet (30%)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Stock 1 | Stock 2 | Stock 3 |
| Company name |  |  |  |
| Headquarter |  |  |  |
| Stock symbol |  |  |  |
| Main products/services |  |  |  |
| Industry |  |  |  |
| Latest price (as of date) |  |  |  |
| Latest PE |  |  |  |
| Latest dividend yield (Dvd Ind Yld) |  |  |  |
| Current Market Capitalization |  |  |  |
| Latest ROE |  |  |  |
| Latest ROA |  |  |  |
| Latest Debt/Com equity ratio |  |  |  |
| Beta VS SPX |  |  |  |
| The highest price and its date during 1/2/2018-12/31/2022 |  |  |  |
| The lowest price and its date during 1/2/2018-12/31/2022 |  |  |  |
| The stock’s past 1-year return (**show your return calculation**) |  |  |  |
| The stock’s 5-year total return over 2018-2022 (**show your return calculation**) |  |  |  |

4. Compare the price movement of each of the three stocks to the S&P 500 and the Russell 2000 over **2018-2022**. Type **GP** in the command line, adjust the data range to **5Y**, click **+Quick-Add** to add the S&P 500 and the RTY (Russell 2000) index. **Export** the image for each stock and include them in your assignment. (20%)

1. Download security prices and Calculate the returns and the risk

a. Type **HP** to get historical monthly prices for the three stocks and the S&P 500 Index (symbol: SPX Index) for **2014/12/1-2019/12/31**. **Export** the Excel file of each stock (there will be 61 monthly prices for each stock). You will have 4 Excel files.

b. Consolidate the data. Open a new Excel file. Copy the dates and monthly prices only, not volume, from the four data files, and paste them into the new Excel file. Make sure the dates for each security are identical and then eliminate three redundant date columns. Your worksheet presentation should be **Date** in Column A, **Prices** of the three stocks, and the S&P 500 in Columns B-E. **Do Not** include the separate worksheets of individual stock prices in your submission (20%). **10-point deduction if you don’t consolidate the data into the same worksheet**.

c. Calculate the average monthly return and the standard deviation of the monthly returns.

In **Columns F-I**, name “XXXX-Ret**”** for each security and the S&P, respectively, and calculate the rate of return month by month (note: R1= P1/P0-1, that is, RDec=PDec/PNov -1). Then in **Row 63-66** of **Columns F-I**, calculate (1) the average of the monthly return, (2) the standard deviation of the monthly returns, (3) the annualized return by the monthly average return, (4) the annualized standard deviation by the monthly returns (highlight your answers**, name this worksheet “Return”**). (30%)

**Your Assignment 1 should include three parts:**

**1) The stock descriptions table**

**2) Three stock against two markets charts**

**3) One Return worksheet that includes monthly prices and returns and standard deviation calculations.**