

**UNIVERSITY OF TORONTO**  
**Rotman School of Management**

**RSM316**

**PROBLEM SET #1**

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1. The file `monthly.csv` contains monthly data of portfolio returns from the combined NYSE/AMEX/Nasdaq over the period 1926/1–2019/12. The first column is the date for the end of the month (in `yyyymmdd` format). The second column is the value-weighted market return, the third column is the equal-weighted market return. The 4th to 13th column are monthly returns from 10 size decile portfolios (sorted by market capitalization, from lowest to highest).
  - (a) Compute the average, standard deviation, 25th, 50th, and 75th percentiles based on the monthly returns of the 12 portfolios.
  - (b) Compute the coefficients of skewness and (excess) kurtosis based on the monthly returns of the 12 portfolios. For each coefficient, perform a test of normality.
  - (c) Repeat the exercises in parts (a) and (b) but based on the returns for the month of January as well as for the rest of year.
2. The file `daily.csv` contains daily data from the combined NYSE/AMEX/Nasdaq over the period 1926/1/2–2019/12/31. The first column is the date (in `yyyymmdd` format). The second column is the value-weighted market return, the third column is the equal-weighted market return.
  - (a) Construct weekly return series using the daily data. The weekly return is computed as the return from Wednesday's closing price to the following Wednesday's close, with the following exceptions:
    - If the following Wednesday's price is missing, the Thursday's price (or Tuesday's if Thursday's is missing) is used.
    - If both Tuesday's and Thursday's prices are missing, the return for that week is reported as missing, and the return for the following week is a 2-week return.
  - (b) Compute the average, standard deviation, 25th, 50th, and 75th percentiles based on the weekly returns of the 2 portfolios.
  - (c) Compute the coefficients of skewness and (excess) kurtosis based on the weekly returns of the 2 portfolios. For each coefficient, perform a test of normality.