Assignment 1

Econ M524 (Fall, 2022)

September 14, 2022

1. The dataset `data1945_2015.xlsx` gives the *real* price and dividend series of US stock market index over years 1945-2015. Using this dataset, compute two variables: continuously compounded returns (including dividends) r_t, and log dividend-price ratios dp_t.

(a). Compute the AR(1) slopes for two variables (0.02 for r_t, 0.92 for dp_t).

(b). Drop the autocorrelation plots for two variables.

(c). Using the dividend-price ratio as the predictor (for the return), run a predictive regression. Report the R-square (6%), the slope estimator (0.09), t-statistic (2.03) for the test of predictability and its two-sided p-value (4.3%).

(a)
```
P=data1945_2015(:,1);
D=data1945_2015(:,2);
RET_4=(P(2:end)+D(2:end))./(P(1:end-1))-1;
DP_4=(D(1:end))./(P(1:end));
ret_4=log(1+RET_4);
dp_4=log(DP_4);
acf=autocorr(ret_4);acf(2)
acf=autocorr(dp_4);acf(2)
```
(b)
```
autocorr(ret_4)
autocorr(dp_4)
```
(c)
```
res=ols(ret_4,[ones(length(dp_4)-1,1) dp_4(1:end-1)])
res.beta(2)
res.rsqr
res.tstat(2)
2*(1-normcdf(2.03))
```