Assignment 5

FINA 5250 Empirical Methods in Finance

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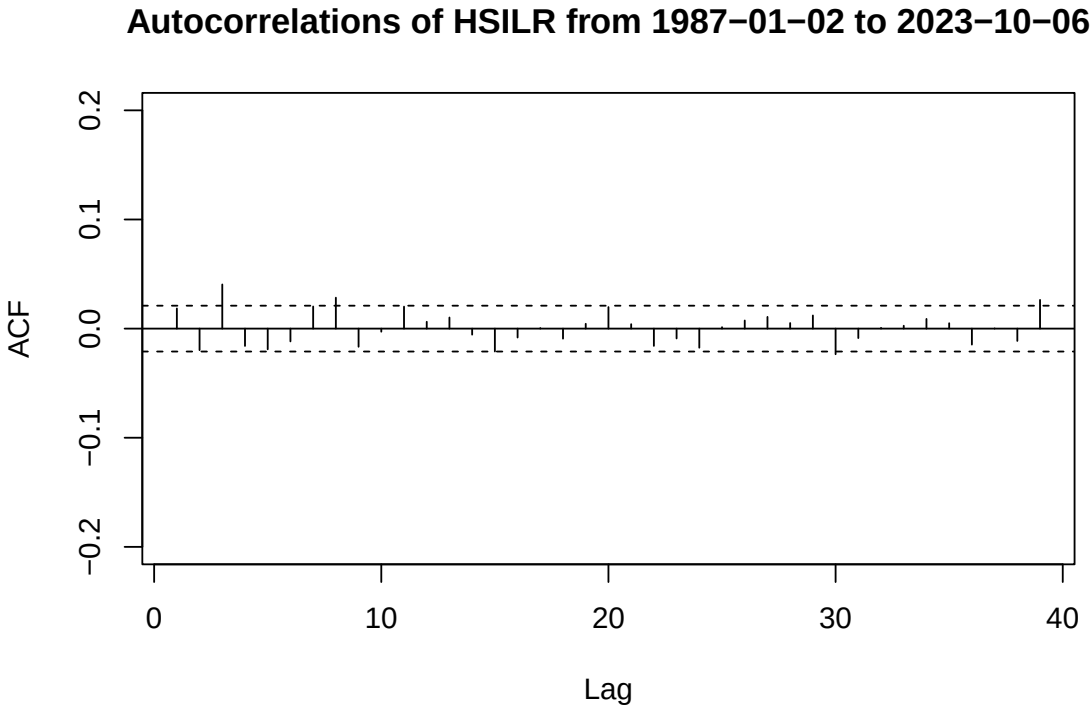
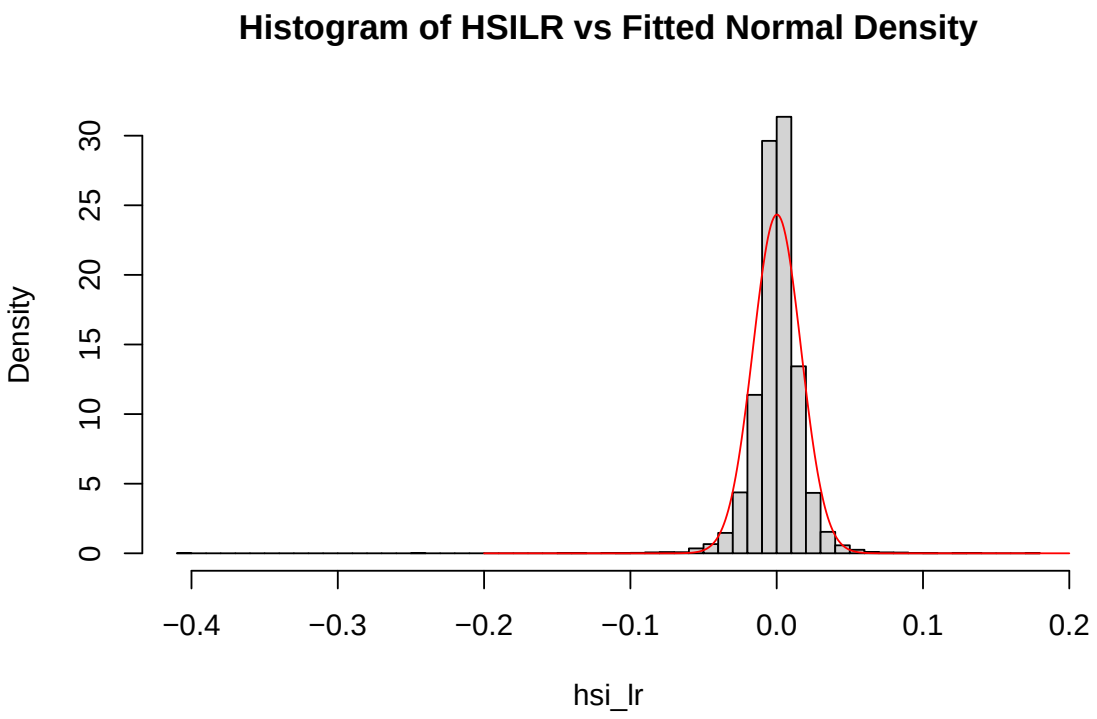
Stylized Fact 1

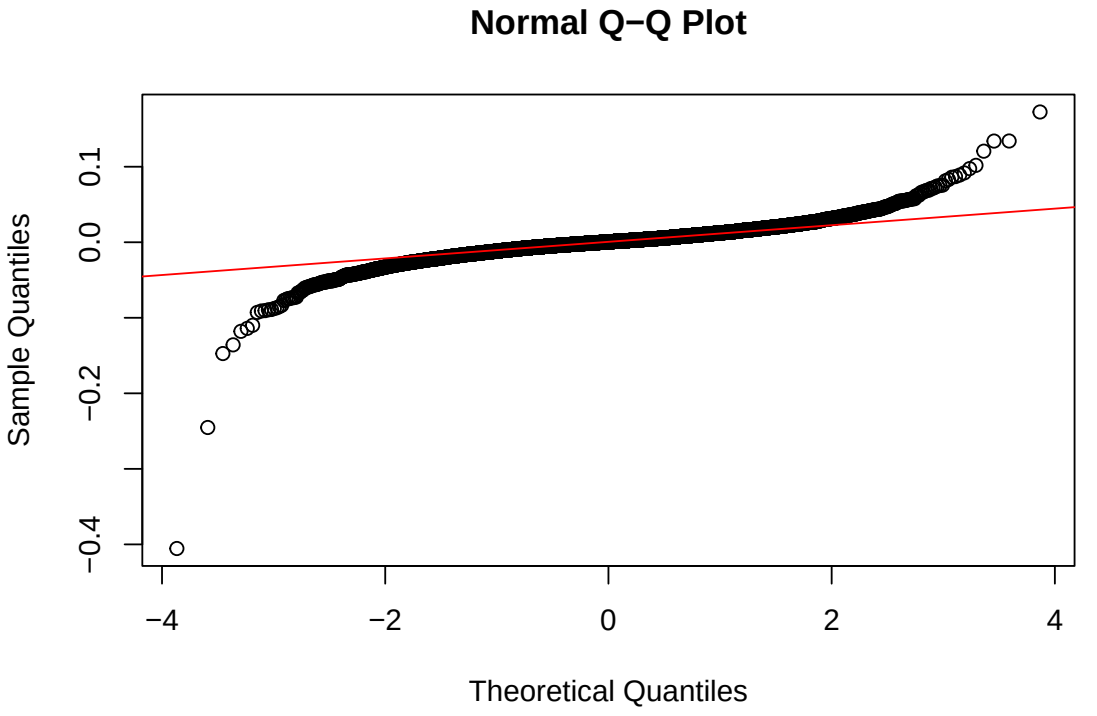
Daily returns have very little autocorrelation.



Stylized Fact 2

The unconditional distribution of daily returns have fatter tails than the normal distribution.






```
## Excess Kurtosis of HSILR: 53.8555311614653
```

The excess kurtosis is very large, so the distribution of HSILR has a much heavier tail than the normal distribution. The fact is also clear in the histogram and q-q plot.

Stylized Fact 3

The stock market exhibits occasional, very large drops but not equally large up-moves.

```
## Skewness of HSILR: -2.09600576506726
```

This is demonstrated by the previous histogram as well. Numerically, the negative skewness implies that the returns have more extreme values to the left of the mean than to the right.

Stylized Fact 4

The standard deviation of returns completely dominates the mean of returns at short horizons such as daily.

```
## Mean of HSILR: 0.000211343678200398
```

```
## Standard deviation of HSILR: 0.0163923846524179
```

The standard deviation clearly dominates the mean, as the mean is close to zero.

To further illustrate this, we can test the null hypothesis that the mean equals zero.

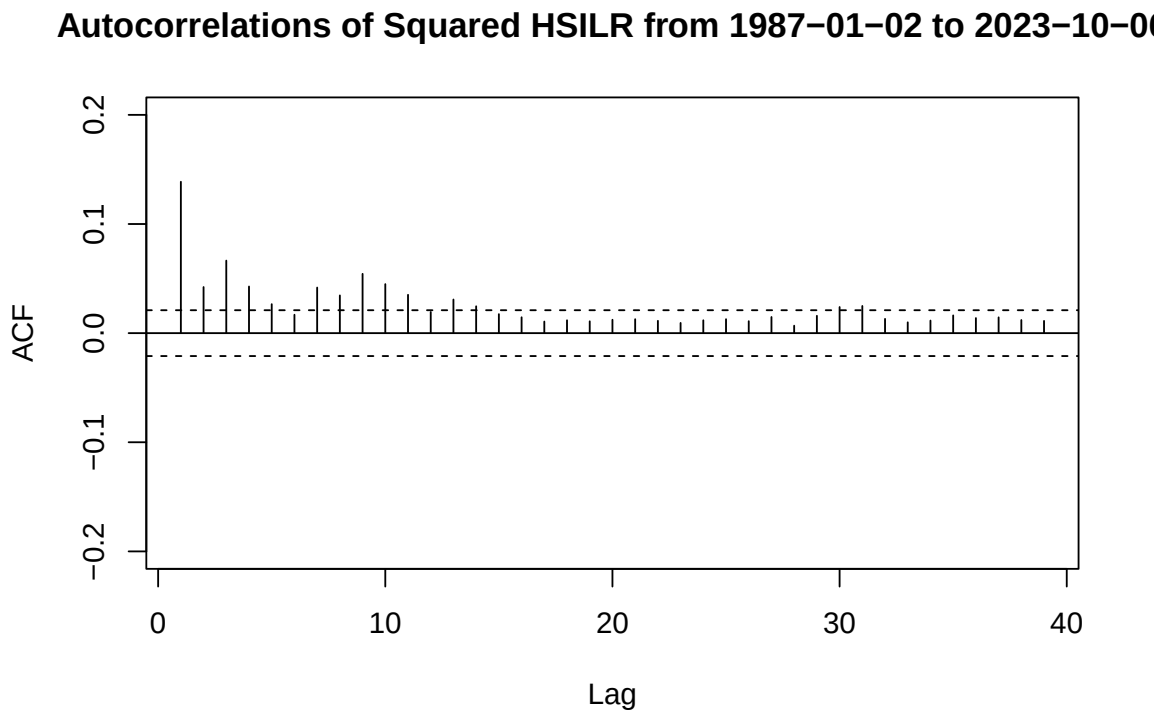
```
## t-statistic: 1.22827148280053
```

```
## p-value: 0.219376925780695
```

We only have 78% of confidence to reject the zero mean hypothesis, so we cannot reject it if we use a common significance level of 5%.

Stylized Fact 5

Variance measured for example by squared returns, displays positive correlation with its own past.



Stylized Fact 6

Volatility clustering: Large returns (either positive or negative) tend to be followed by large ones, and small returns tend to be followed by small ones.