Influence of outliers:

* Model misspecification
* Biased parameter estimation
* Poor forecasts

A multivariate series, when considered jointly, contains more information about outliers than a univariate series.

A possible detection and estimation procedure:

Principle: since in practice, the number, locations of outliers are unknown in prior, an iterative procedure is required.

1. Assuming no outlier at very beginning and build a multivariate time series model for returns of several tenors. (The appropriate model has to be explored later, possibly vector ARIMA model).
2. Study the residuals and other estimated parameters to construct a test statistics for outliers and find the corresponding possible outliers.
3. Use certain interpolation methods to remove the impact of the possible outliers and get an adjusted new series. Treat it as a new data set and return to step 1 to repeat the whole procedure.
4. Terminate the detection and interpolation procedure of outliers until there are no significant outliers detected.