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# Econometrics

## Lecture: CDS and Z-spread cointegration

In this laboratory we analyse the nexus between CDS spread and Z-spread within the 2009-2023 period. The file "Italy cds zspread monthly.xlsx" is composed by 171 monthly closing value observations both for Italian CDS spread and Z-spread. Data go from 30<sup>th</sup> January 2009 to 31<sup>st</sup> March 2023.

1. Import data and plot monthly observations for both time series.
2. Perform OLS linear regression considering both time series as explanatory variable of the other one. Check the OLS assumptions.
3. Check stationarity for the time series and for the first difference time series.
4. Plot first difference time series.
5. Check for possible breaking points for each time series.
6. Select the number of lags to be included in the model.
7. Perform a cointegration test and estimate the cointegration relationship between the two time series.
8. Perform an unrestricted VEC model.
9. Perform a VAR model.
10. Analyse the impulse response function for the VAR models.
11. Perform a Granger causality test.