

Centre for Econometric Analysis (CEA@Cass)
&
INQUIRE UK (Project N. 2007/01)

Research Project
“Testing Factor Structure Stability in Yield Curve Factor Models”

Factor analysis has greatly contributed towards solving the dimensionality problem and identifying the underlying structure governing term structure of interest rates. This project delves into the important issues of yield factors' stability in term structure of interest rates, raised in recent papers. We develop “change point” testing procedure for term structure panels featuring commonality of shocks in order to capture the instability risks associated with level, slope, and curvature factors of the yield curves. We define the instability risks as risks associated with abrupt movements in the factors governing the term structure. We identify the four different sources of instability and develop statistical tests for (i) testing stability in interest rate *factors*, (ii) testing stability in interest rate *factor loadings*, (iii) testing stability in *number* of interest rate factors, and (iv) testing stability in the interest rate *volatility factors*. This study has direct implications to identifying macroeconomic events causing the instability risks in term structure of interest rates and therefore a comprehensive empirical exercise will evidently be undertaken.

Our objective is therefore to develop a stability testing procedure for evaluating interest rate term structure panels. The stability tests will

- help us finally formally analyse the stability issue in level, slope, and curvature factors instead of relying on graphical methods
- validate (invalidate) the use of factor analysis when factors are stable (unstable)
- explain the “unspanned volatility” issue in swap markets by examining instability induced in the number of factors considered
- explain role of jumps and stability in cases of ‘cojumping’

CEA@Cass OCCASIONAL SEMINAR
(Friday, 1 June 2007, 16:00-18:00 Room 5010)

CHAIR: Giovanni Urga (*Cass Business School, UK*)

16:00-17:00

“Testing for Instability in Factor Structure of Yield Curve”

Dennis PHILIP (*PhD student, Cass Business School*)

17:00-18:00

“A Distribution-Free Test for Changes in the Distribution”

Lorenzo TRAPANI (*Cass Business School, UK*)

18:00: End of the seminar.

The seminar will be attended by David Buckle (Principal Global Investors and INQUIRE Research Committee). David is the “practitioner contact” of the INQUIRE UK sponsored research project.

Giovanni Urga, **Wednesday, 30 May 2007**