10th Payment and Settlement System Simulation Seminar and Workshop

30–31 August, 2012

Bank of Finland

Rauhankatu 19 Auditorium, Helsinki

Edoardo Rainone (Banca d'Italia)

Paper Discussion

Volatility analysis of EONIA in the Dutch money market

By

Ronald Heijmans Lola Hernández Richard Heuver

Resume, Topic's importance and Contribution

Resume

The analysis is mainly focused on behaviour of **Deonia**, its first difference and its **volatility** within the maintenance period. Splitting data in **four subsample periods** authors try to understand if some pattern in Deonia and its volatility has significantly changed through these periods, using an **EGARCH** model.

Topic's importance

The **smooth-functioning of money market** is a necessary condition for monetary policy transmission, in particular during crisis' periods.

Contribution

Use of Furfine algorithm to **identify a specific segment of money market** (Dutch subsample).

Deonia

Evidences

- Results substantially reject the **martingale hypothesis** ($\mathbf{r_t}$ depends only on $\mathbf{r_{t-1}}$) for all of sub-periods, than features of payment system may result in predictable patterns in rates, daily frequent liquidity effects. (results are in line with Hamilton (1996) and Prati et al.(2002)).
- Authors find a **different behaviour** (among periods) in particular at the begin and at the end of **maintenance period** (as shown in descriptive statistics) while **calendar effects** show a slightly **constant effect** in all of the subsample periods.
- The **autoregressive component** is **not stable** through periods.

Suggestions and Criticisms

It is not clear which **AR(p)** process characterizes D-Deonia, is it the same for all sub-samples? If not, why does it change?
(more work could be done on this issue).

Volatility of Deonia

Evidences

Periods do **not** show a great **difference** in terms of day position effect within **maintenance period**, in particular begin and end of MP do not seem to be so extremely different as it was for first differences.
Persistence in volatility is found only in OF and EMU FRFA.
The **symmetric effect** (of a shock in level of first difference at time t-1 on volatility at time t) is always significant while **Asymmetric effect** is always not significant, it means that the sign of the shock does not matter in determining volatility level in the following day.

Suggestions and Criticisms

-You find a significant **Settlement-day volatility effect**, you could add a formal test for verifying the hypothesis that it tends to spread to previous day.
-Differences (among periods) of **symmetric effects** are not huge so you should perform some statistical test to convince the reader that "*in FRFA symmetric effect is much higher than in previous periods*".
-R-Squared are not so similar among different periods, so your model seems to **not homogeneously fit** the four periods, in particular it do not well-fit OF.
- You could test if **lower required reserves** impacted periodicity of D-Deonia and its volatility?

Data exploration and technical issues

Data exploration

Furfine Algorithm permits to identify **bilateral information** on money market network, this additional information might be used to characterize the **within (time) variance** as a first step and to analyze **concentration of volatility** in network's clusters as second step.

Technical issues

-Given the kurtosis high values (in particular for the last period), what kind of **distribution** did you use for the innovations (v_t)? Did you test for student-t and GED?
- If I look at summary statistics the **minimum** of **rate Std.Dev**. is reached during financial **turmoil period** (?), it pushes me to think you didn't filter for the change in refinance rate in calculating this statistic. If it is the case this statistic reflects mainly the change in policy rate but I suppose you want to give an idea of volatility given (conditioning on) this value.