

3rd Financial Risk International Forum

Risk Dependencies

Session 9 – REGULATION

(1) « *Proposed Indicators for Macro-Prudential Supervision of the Banking System in the CEMAC Zone* », by S.Y. Kamgna, J. Tinang Nzesseu & C. Tsombou Tinfak

(2) « *Improved Modelling of Double Default Effects in Basel II – An Endogenous Asset drop Model Without Additional Correlation* », by S. Ebert & E. Lütkebohmert

Discussion : Laurent Clerc (Banque de France)

Introduction (1/2)

- Session on Banking regulation
- Two papers dealing with current regulatory issues but from a completely different perspective
- First paper on macro-prudential policies
- Second paper focusing on micro-prudential policy (refinement of Basel 2)

Introduction (2/2)

- **Macro-prudential approaches:**
 - To address systemic risk ; pro-cyclicality in financial system
 - Holistic view: financial / banking system as a whole
 - Current issues: G20 – FSB ; ESRB in Europe
- **Micro-prudential approaches**
 - Idiosyncratic risk; counterparty risk
 - At individual firm level
 - Current issues: BCBS proposals; Basel 3

(1) « *Proposed Indicators for Macro-Prudential Supervision of the Banking System in the CEMAC Zone* », by Kamgna, Tinang Nzesseu & Tsombou Tinfak

- One lesson of the recent crisis: micro-prudential tools not enough to ensure financial stability: missed interconnectedness amongst financial intermediaries; systemic risk; risk dependencies
- Issue: implement macro-prudential rules or regulation at the global level: G20
- Interesting contribution here to CEMAC zone which may have very particular features regarding its banking system (cash transactions; excess liquidity in the banking system; underdeveloped financial markets)

Method & results

- 2 –step method:
 - Step 1: characterize a weak banking system;
 - Step 2: estimate a logit model
- 2 main streams in the literature: signaling (currency & financial crises) vs. discrete choice models (logit/probit)
- Here, the paper relies on the latter: logit model in line with recent contributions (e.g. Borgy, Clerc & Renne, 2009) but with a slightly different focus: not asset / credit boom-bust cycles but banking system weakness
- Main variables to focus on: claims over the private sector ; FDI+ combined trend of credit and exports (+); owners' equity on total asset, exchange rate variation, inflation (-)

Main questions / issues for discussion

- weak financial system/ bank? / systemic institutions, too interconnected institutions...
- approach by numbers? Expect more appropriate weighting schemes
- How is variable F_t (*intervention fund available in the coffers of the regulator*) measured? ($\lambda=1\%$ of GDP?)/ alternative: budget deficits, virtually no limits...
- Banking system deterioration variable: arbitrary threshold=25%: sensitivity?

Main questions / model

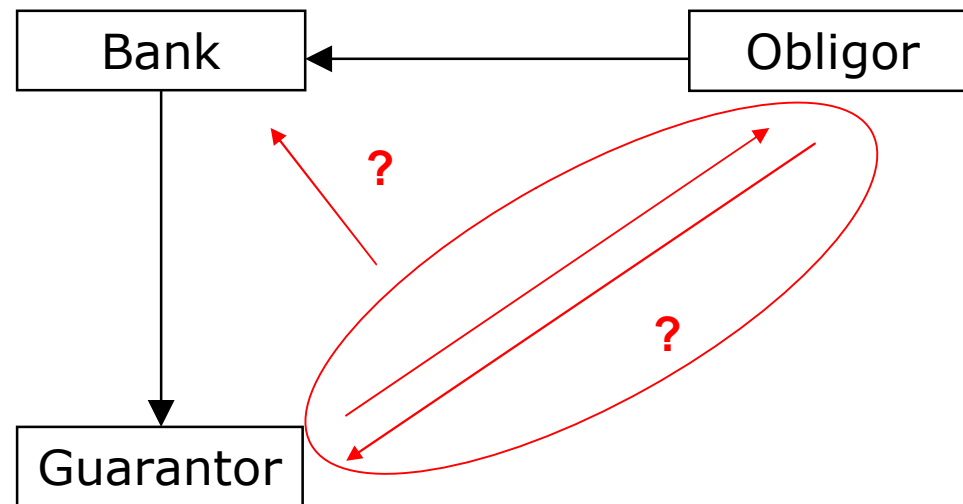
- As far as the model is concerned
- Y_{it} not defined;
- Same coefficient across countries: how sensitive the assumptions
- Lags? No clear whether the approach defines early warning system
- No table provided: difficult to assess the result
- Given the methodological choice, wouldn't a signaling approach better suited?

« *Improved Modelling of Double Default Effects in Basel II – An Endogenous Asset drop Model Without Additional Correlation* », S. Ebert & E. Lütkebohmert

- Paper proposes a refinement of the Basel 2 on the issue of double default effect
- Basel 2 provides some capital relief to account for the risk-mitigating effects of credit hedges
 - Financial guarantees
 - credit default swaps

Aim of the paper

- Under Basel 2: two possibilities:
 - Substitution approach
 - Treatment of double default effect based on the asymptotic single-risk factor framework (ASRF)



Basel 2 treatment of hedged exposure

- A (ASRF/) Merton model describes default by both the obligor (o) and the guarantor (g)

$$Y_o = \left(\varepsilon_o \sqrt{1 - \psi_{og}} + Z_{og} \sqrt{\psi_{og}} \right) \sqrt{1 - \rho_o} - X \sqrt{\rho_o} \leq \gamma_o = \Phi^{-1}(PD_o)$$
$$Y_g = \left(\varepsilon_g \sqrt{1 - \psi_{og}} + Z_{og} \sqrt{\psi_{og}} \right) \sqrt{1 - \rho_g} - X \sqrt{\rho_g} \leq \gamma_g = \Phi^{-1}(PD_g)$$

- Two risk factors drive default correlations
 - X (systemic risk factor) affects all exposures in the portfolio
 - Z affects only the obligor and the guarantor

Limits of current treatment:

- Z_{og} is specific to a pair of obligator and guarantor: does not have any influence on the asset return of all other obligators in the banks portfolio
- What if the guarantor is itself an obligator in the portfolio?
- Asymmetric exposure: default of the guarantor unlikely to cause the default of the obligator, the reverse is less true

Value added of the paper: asset drop technique

$$(8) \quad \text{PD}_{g_1} = \mathbb{P}(V_{g_1}(T) < B_{g_1}) = 1 - \Phi \left(\frac{\ln(V_{g_1}(t)/B_{g_1}) + (r - \frac{1}{2}\sigma_{g_1}^2)(T - t)}{\sigma_{g_1} \sqrt{T - t}} \right)$$

$$(11) \quad \text{PD}'_{g_1} = 1 - \Phi \left(\frac{\ln \left(\frac{V_{g_1}(t)}{B_{g_1} + \hat{E}_{1,g_1}} \right) + (r - \frac{1}{2}\sigma_{g_1}^2)(T - t)}{\sigma_{g_1} \sqrt{T - t}} \right)$$

Questions / issues for discussion

- The increase in the guarantor's default probability depends on the size of the guarantor: valuation issues? Adequate rating of guarantors?
- To what extent would such a proposal increase the pro-cyclicality of capital requirements?
- Simple credit risk models but complex financial institutions: issue of conditional independence
- In this context, safety margin=model which provides high estimates of PD?
- Consistency with recent BCBS proposals?