The term structure of interbank risk

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- Paper analyzes term structure of LIBOR-OIS spread.

- LIBOR-OIS is widely used as a thermometer to check the fever of the banking system.

- Extensively looked at by both practitioners and academics.

- Considered a gauge of liquidity and credit risk on the interbank market.

1 The spread

- Bank wants to lend funds on interbank market for, say, 3 months.

- Strategy 1 (**one-shot**):
  - lend for 3 months to one bank at LIBOR rate (fixed today for all 3 months).

- Strategy 2 (**roll-over**):
  - lend overnight at O/N rate and roll-over everyday for three months;
  - use OIS to exchange variable O/N rate with fixed rate.

- At a superficial look:
  - two strategies are the same;
  - therefore, by NA, it should be LIBOR=OIS.
- At a deeper look:
  - there are (not so) small differences;
  - these differences determine LIBOR-OIS spread.
- Paper analyzes these differences and how they impact the spread at different maturities.

- Both strategies are exposed to credit risk (insolvency of the borrower).

- Both strategies involve lending to a PRIME BANK (outstanding credit quality).

- But:

  - with **one-shot**, you lend for three months to a bank that is PRIME today, but could become less creditworthy during the three months;

  - with **roll-over**, on each day you lend to a PRIME bank.

- Therefore, one-shot is more exposed to credit risk than roll-over and LIBOR>OIS.

2 The paper

- Thus, credit risk is an explanation for LIBOR-OIS differential.

- Paper develops a term-structure model and performs an empirical exercise to:

  - understand how much of the LIBOR-OIS spread is explained by credit risk, at various maturities.

- How? Using information on creditworthiness embedded in the term structure of CDS spreads.

- Main finding:
  - Credit risk, as measured by CDS spreads, explains:
    - less than 50% of the spread at shorter maturities (3M);
    - almost all of the spread at longer maturities.

- What can explain the remaining portion of the spread (RESIDUAL)?
  - LIQUIDITY: several measures of funding and market liquidity are highly correlated with the spread.

3 General comments

- Topic of the paper is very RELEVANT.
- Term structure model is ORIGINAL and contains interesting TECHNICAL INNOVATIONS.
- Credit risk part is well-explained and COMPETENTLY EXECUTED, with several robustness checks.
- Liquidity part could be MORE CONVINCING.

4 LIQUIDITY?

- It would be nice to have a lucid explanantion of how liquidity affects pricing in the interbank market.
- Very fashionable to explain residuals in financial models with liquidity.
- But, most of the liquidity proxies look much like DUMMIES (1 during the financial crisis, 0 elsewhere).
- Not surprising that liquidity proxies are correlated with many unusual things occured during the financial crisis (e.g.: widening of LIBOR-OIS spread).
- Does this CORRELATION have anything to do with CAUSATION?

5 LEMONS?

- Is liquidity the only possible explanation?

- Let me offer an alternative explanation of the residuals, that involves:
  - MORE CREDIT RISK
  - PRIVATE INFORMATION ON CREDIT RISK
  - ADVERSE SELECTION

- I am the lender.

- Potential borrowers know much more than I do about their own future credit quality and their own future ability to borrow funds.

- I know there are LEMONS around (prime banks that will soon face difficulties), but I do not know their identity (e.g.: I know some banks used emergency lines at central banks, but I do not know who they are).

- I raise LIBOR because now potential borrowers have a higher risk of credit deterioration.

- After increase in LIBOR:
  - banks who expect their future credit quality to remain good will prefer O/N financing and roll-over to 3M financing at LIBOR.
  - banks who expect their future credit quality to deteriorate will still find it convenient to secure 3M funding at higher rates.
- After adverse selection, I need to raise LIBOR even more, because average risk of potential borrowers has become higher.
- More adverse selection... LIBOR goes even higher... and so on, until volumes go to zero and liquidity completely evaporates (CONSEQUENCE, NOT CAUSE).

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