Discussion for Uesugi and Hazama (2012)
“Measuring the Systemic Risk in Interfirm Transaction Networks”

Prepared for
HIT-TDB-RIETI International Workshop
on the Economics of Interfirm Networks

November 29-30, 2012

Daisuke Miyakawa (Development Bank of Japan)
1. **Summary (1)**

- **Entropy Maximizing Approach & Propagation Mechanism**

  - **Step-1**: Given $p_i$, assign $L_{ij}$ as random as possible with considering the size of $p_j$.

  - **Step-2**: Compute the clearing vector $p_i^*$ (i.e., actual payments in sudden clearance).

  - **Step-3**: $p_i^* = L_{ci} + e_i < p_i$ might be the case. 

Chain-reaction might occur.
1. Summary (2)

- Key results

- Chain reaction could matter (e.g., initial default 9,392 vs. secondary 849 in the baseline example and 9,392 vs. 2,739 in the 100% LGD example)

- LGD for initial defaults tend to be larger than that for secondary default (although no size difference b/w initial defaulted and secondary)

- Positive (mild) correlation b/w (i) the predicted default in the case of sudden clearance and (ii) the actually observed default (esp. due to defaulted TA)

⇒ An interesting exercise for quantifying the trade credit network

⇒ Providing valuable information for researchers and practitioners
2. Major Comments (1)

- How to use the result?
  - It looks like computing a “modified” liquidity ratio
    - I.e., (actually receivable trade asset + cash) / trade debt
  - This measure has additional information to the traditional liquidity ratio?
    - In the context of default prediction?
    - Any conditions under which this modified index matter?
    - If so, bankers might be interested in such a new index

Partly done
2. **Major Comments (2)**

- **Why are the “defaulted” firms taking such a position?**

  - Defaulted firms hold large trade debt compared to trade asset + cash
    - Large TD, Small TA, and/or Small cash

  - How to interpret this? Does this reflect something?
    - Small outputs (i.e., sales) compared to inputs (i.e., intermediate goods)?
    - Too much reliance on trade debts compared to trade assets?
    - Large bargaining power?

  - What determines the position?
    - Esp., dynamics of the modified liquidity ratio?
    - Panel estimation of (TA+Cash)/TD if possible
    - Could make sense as far as we believe the estimated $L_{ij}$
3. **Minor Comments**

- **Use $L_{ij}$?**
  - One smart way to estimate the interfirrm connection
  - Use it to analyze, for example, the transmission of industry- and/or firm-specific shock (e.g., some episodes of large bankruptcy, financial crisis etc.)?
  - What about technological spillover?

- **Correlation between predicted and actual defaults?**
  - Any chance to predict defaults (e.g., low modified liquidity ratio at $t-\tau$ $\implies$ default at $t$)?
  - (Related to the point in the previous slide,) instrumenting modified liquidity ratio in the default estimation?
<Contact Information>

Daisuke Miyakawa:

Associate Senior Economist

Research Institute of Capital Formation, Development Bank of Japan

Otemachi Financial City South Tower 5F

1-9-7 Otemachi Chiyoda-ku, Tokyo, 100-8178 JAPAN.

E-mail: damiyak@dbj.jp, damiyak@gmail.com