Discussion: “Relationship Trading in OTC Markets”, Hendershott, Li, Livdan & Schürhoff

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Summary of the paper

The paper investigates the links between insurers' trading network, trading activity and execution quality.

Main empirical findings :

- Insurer's trading activity and trading network's size share many explanatory characteristics (co-move with insurer's type, size, leverage, traded bonds characteristics,... etc).
- Insurers' trades execution quality increases with the network's size

A model to rationalize these findings :

- Insurers optimally choose their networks.
- The larger their trading needs, the larger their optimal networks.
- Trading needs have a positive effect on execution quality (through a positive effect on the relationship value)
- Networks size has a negative effect on execution quality (through a negative effect on the relationship value)
- The first effect dominates

General comments

Very interesting paper !

- Easy to read.
- Novel empirical findings.
- Challenging for the OTC markets theory.

- The model explanation can be improved.
- I would like to better understand the main economic mechanism :

$$\text{trading needs} \;\rightarrow\; \text{optimal network} \;\rightarrow\; \text{execution quality}$$

- Some assumptions should be discussed.
- Important because the model is taken seriously (structurally estimated).

The Model in a nutshell

- An insurer wants to alternatively buy (frequency η) or sell (frequency κ) because his private valuation for the asset is alternatively high or low.
- The insurer can trade with N dealers. Each dealer is an intermediary between the insurer and the inter-dealer market.
- Each dealer access the inter-dealer market at speed λ. The first to access the market trades with the insurer.
- The higher N, the higher the access speed for the insurer, $\Lambda = \lambda N$, the lower the delay between the trading need and the trade.

- Whenever the asset is transferred to/from the insurer, trading surplus is generated.

- The insurer buys at price P_b and sell at price P_s, determined by a Nash bargaining with the dealer.

Main economic mechanism

What happens when the trading needs frequency increases ?

- Let's look at the "first round effect", when prices are kept fixed.
- When η increases, the insurer has more often a high private valuation for the asset $\Rightarrow$ the insurer's utility, V, increases.
- In addition, one can compute and show that (see appendix)

$$\frac{\partial^2 V}{\partial N \partial \eta} > 0$$

- Start with an equilibrium network, such that $\frac{\partial V}{\partial N} = 0$. With a positive shock on η, $\frac{\partial V}{\partial N}$ becomes positive, and the insurer wants to increase N until it becomes nil again.

- This does not take into account how equilibrium prices respond (which is not obvious).
- My take is that the former mechanism dominates : N^* increases with η.
- It might be interesting to understand why $\frac{\partial^2 V}{\partial N \partial \eta} > 0$. Why does the value of reducing the trading delay increases with η ?

Equilibrium prices

Intuition : the buy price should decrease with η and increase with N, because they have respectively a positive and a negative effect on the relationship value. When N^* is optimally chosen, the buy price decrease (symmetrically for the sell price).

Actually, it is not obvious. Consider the effect of η on prices :

- When η increases, dealers are also better-off because they trade more often.

$\Rightarrow$ Both dealers and insurers are better-off.

- In the Nash bargaining, if the buyer has an increase in the gain from trade, while the seller does not, the seller extract a share of this higher gain via a higher price (and vice-versa if the seller has a higher gain from trade).
- Here, the dealer and the insurer have both larger gains from trade, resp ΔU and ΔV. Prices could go both way.

$$\max_p (\Delta V - p)^{1-\alpha} (\Delta U + p)^{\alpha} \Rightarrow p = \alpha \Delta V - (1-\alpha)\Delta U$$

- It would be interesting to investigate in more depth the price response.

Execution quality

- The bid-ask spread, $P_b - P_s$, decreases with η (see Fig. 4).
- Is it because the former intuition works well in this case, or is it also ambiguous ?
- As the average price level depends on η as well. It may be interesting to also consider the relative bid-ask spread,

$$2\frac{P_b - P_s}{P_b + P_s}$$

Competition among dealers and mark-ups

In the model, more competition among dealers imply greater execution speed but larger mark-ups.

- Instead, we may think that competition has a negative effect on mark-ups.
- Think of situation where the insurer can pay a fixed cost to obtain (Bertrand) price competition among dealers, while having repeated trading with one dealer is free but cannot yield the same price improvement (by assumption).

$\Rightarrow$ When trading needs are large enough, the insurer pays the cost for competitive dealers (larger network) which yields smaller mark-ups.

- This “model” might be too ad hoc but yields the same results with the opposite assumption.

The important question is the empirical validity of the assumption.

- Is dampening the search friction really the main purpose of the network, in the corporate bonds market ?
- Is your hypothesis testable somehow ?
- For instance, if λ increases due to a technological shock what would happen to N^*, to execution quality...etc ?

Conclusion

- Novel empirical findings and nice theory to interpret the results.
- The clarity of the main mechanisms could be improved.
- Additional testable model implications could help to strengthen the paper.
- A paper to read !

Appendix

- Continuation values :

$$rV_s = C(1-L) + \Lambda(V_{no} + P_s - K - V_s) \text{ with } rV_{no} = \eta(V_b - V_{no})$$

$$rV_b = \Lambda(V_o - P_b - K - V_b) \text{ with } rV_o = C + \kappa(V_s - V_o)$$

- first derivatives :

$$\frac{\partial V_b}{\partial \eta} = \frac{\Lambda}{r+\Lambda}\frac{\partial V_o}{\partial \eta} = \frac{\Lambda}{r+\Lambda}\frac{\kappa}{r+\kappa}\frac{\partial V_s}{\partial \eta} = \frac{\Lambda}{r+\Lambda}\frac{\kappa}{r+\kappa}\frac{\Lambda}{r+\Lambda}\frac{\partial V_{no}}{\partial \eta}$$
$$= \frac{\Lambda}{r+\Lambda}\frac{\kappa}{r+\kappa}\frac{\Lambda}{r+\Lambda}\left(\frac{\eta}{r+\eta}\frac{\partial V_b}{\partial \eta} + \frac{r}{(r+\eta)^2}V_b\right) > 0$$

$$\frac{\partial V_b}{\partial \Delta} = \frac{\Lambda}{r+\Lambda}\frac{\partial V_o}{\partial \Delta} + \frac{\overbrace{V_o - P_b - K - V_b}^{>0}}{r+\Delta}; \quad \frac{\partial V_o}{\partial \Delta} = \frac{\kappa}{r+\kappa}\frac{\partial V_s}{\partial \Delta}$$

$$\frac{\partial V_s}{\partial \Delta} = \frac{\Lambda}{r+\Lambda}\frac{\partial V_{no}}{\partial \Delta} + \frac{\overbrace{V_{no} + P_s - K - V_s}^{>0}}{r+\Delta}; \quad \frac{\partial V_{no}}{\partial \Delta} = \frac{\eta}{r+\eta}\frac{\partial V_b}{\partial \Delta}$$

$$\Rightarrow \frac{\partial V_b}{\partial \Delta} > 0, \ \frac{\partial V_s}{\partial \Delta} > 0, \ \frac{\partial V_o}{\partial \Delta} > 0, \ \frac{\partial V_{no}}{\partial \Delta} > 0$$

Appendix

- cross derivatives :

$$\frac{\partial^2 V_b}{\partial\Delta\partial\eta} = \frac{\Lambda}{r+\Lambda}\frac{\partial^2 V_o}{\partial\Delta\partial\eta} + \frac{\overbrace{\frac{\partial V_o}{\partial\eta} - \frac{\partial V_b}{\partial\eta}}^{>0}}{r+\Delta}$$

$$\frac{\partial^2 V_o}{\partial\Delta\partial\eta} = \frac{\kappa}{r+\kappa}\frac{\partial^2 V_s}{\partial\Delta\partial\eta}$$

$$\frac{\partial^2 V_s}{\partial\Delta\partial\eta} = \frac{\Lambda}{r+\Lambda}\frac{\partial^2 V_{no}}{\partial\Delta\partial\eta} + \frac{\overbrace{\frac{\partial V_{no}}{\partial\eta} - \frac{\partial V_s}{\partial\eta}}^{>0}}{r+\Delta}$$

$$\frac{\partial^2 V_{no}}{\partial\Delta\partial\eta} = \frac{\eta}{r+\eta}\frac{\partial^2 V_b}{\partial\Delta\partial\eta} + \frac{r}{(r+\eta)^2}\frac{\partial V_b}{\partial\Delta}$$

$$\Rightarrow \frac{\partial^2 V_b}{\partial\Delta\partial\eta} > 0,\ \frac{\partial^2 V_s}{\partial\Delta\partial\eta} > 0,\ \frac{\partial^2 V_o}{\partial\Delta\partial\eta} > 0,\ \frac{\partial^2 V_{no}}{\partial\Delta\partial\eta} > 0,$$