Discussion of "Over-the-Counter Markets for Non-Standardized Assets" Nozawa and Tsoy (2023)

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Pairwise Bargaining over an Asset

- A pair of firms bargain over a single asset of quality $\theta \in [0, 1]$.

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- Textbook result: as long as there are gains from trade, i.e., $v(\theta) \geq c(\theta)$, then

$$\text{agreement price}: \qquad \lim_{\Delta \to 0} p(\theta) = qv(\theta) + (1-q)c(\theta)$$
$$\text{agreement delay}: \qquad \lim_{\Delta \to 0} t(\theta) = 0.$$

Pairwise Bargaining over an Asset

- What if the asset quality, $\theta \in [0,1]$, is not common knowledge?
- Each firm observes a noisy signal about the asset's quality:

$$\theta^s = \theta + \epsilon^s \qquad , \qquad \theta^b = \theta + \epsilon^b$$

  This is the sense in which the asset is not "standard"

- What happens to the price and bargaining delay?

$$\lim_{\sigma \to 0} \lim_{\Delta \to 0} p(\theta) = ? \qquad , \qquad \lim_{\sigma \to 0} \lim_{\Delta \to 0} t(\theta) = ?$$

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- Order of limits is important here: asymmetry of information is significantly larger than bargaining frictions.

Pairwise Bargaining over an Asset

- As long as $\sigma > 0$, each firm is uncertain about
  (i) its own valuation
  (ii) the other party's valuation (even more so)

- Traders start screening each other out:
  - sellers of all types start making price offers p_t^s that decrease with time
  - buyers of all types start making price offers p_t^b that increase with time

- This means that not all types are going to accept right away $\rightarrow$ bargaining delay
- only parties with extreme types accept offers early $\rightarrow$ non-monotonic delay

Pairwise Bargaining over an Asset

- Equilibrium price:

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- Equilibrium delay:

$$\lim_{\sigma \to 0} \lim_{\Delta \to 0} t(\theta) = \begin{cases} \text{increasing} & \theta \in [0, \theta^*) \\ \text{decreasing} & \theta \in (\theta^*, 1] \end{cases}$$

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- Summary:
  - hump-shaped delay in trade
  - only due to the lack of common knowledge (and not bargaining frictions)
  - Completely independent of the search frictions, standardization, etc.

OTC Markets

- What if now we put these agents into an OTC market with search frictions, where they have to look for potential partners?

(1) $v(\theta)$ and $c(\theta)$ become endogenous: they depend on the opportunity costs of traders to look for other trading partners.

(2) traders compare the cost of delay in bargaining with the current partner to the cost of searching for others

(3) hump-shaped trading delays mean that assets with extreme qualities are traded, but not those with intermediate values

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- Paper repeatedly refers to bargaining frictions:

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- The frictions are instead different:
  - informational asymmetry
  - restricted contract space (have to screen the other party with a single contract, and not a menu of contracts)

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  - the degree of bargaining friction
  - $k = 0$ interpreted as the complete-information benchmark
  - the degree of which the asset is standardized"

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- The paper gives various different interpretation to this parameter k throughout
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  - the degree of which the asset is standardized"

- These interpretations seem inconsistent with one another
- I could not convince myself that either one of these interpretations actually make sense
- I view this as more than a cosmetic issue, as the paper's main message is tightly dependent on how one interprets k

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- Second interpretation: $k = 0$ is the complete-information benchmark
  - But changing k is changing the preferences, not the information structure.
  - Complete information benchmark defined as follows (independently of k):

$$\lim_{\Delta \to 0} \lim_{\sigma \to 0} \qquad \text{compared to} \qquad \lim_{\sigma \to 0} \lim_{\Delta \to 0}$$

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- Third interpretation: k captures the degree of asset standardization
  - this is the most plausible of all three interpretation, but the degree of asset standardization has a better counterpart in the model
  - k is the marginal value of quality (in the simple case $1 + k\theta$)

Comments 2: What is k in $1 + ku(\theta)$?

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  - k is the marginal value of quality (in the simple case $1 + k\theta$)

- Asset quality is distributed as $\theta \sim f(\theta)$
- Imagine if the distribution from $f(\theta)$ to $f'(\theta)$ such that $\mathbb{E}[\theta]$ stays the same, but the dispersion/ex ante uncertainty about θ's shrinks.
- Average asset quality is the same, marginal valuation k is the same, but now assets are more similar (and hence are more "standardized")

Summary

- Really interesting (and technically impressive) paper
- I pretended the analysis is simple, but it's anything but

- The main takeaway message are comparative statics with respect to (i) the role of standardization and (ii) the degree of bargaining frictions.
- I think the paper can do a better job in mapping these objects to the model