Discussion of "A Theory of Power Law Distributions for the Returns to Capital and of the Credit Spread Puzzle", by Francois Geerolf

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Summary

- This paper models:
  - Cross section of leverage across borrowers who use collateralized credit
- There are two main results
  1. **Equilibrium characterization** with assortative matching and rich cross section of leverage ratios
  2. **Pareto distribution** for leverage ratios

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  - Cross section of leverage across borrowers who use collateralized credit
- There are two main results
  1. **Equilibrium characterization** with assortative matching and rich cross section of leverage ratios
  2. **Pareto distribution** for leverage ratios
- Other interesting implications
- The material on short sales and pyramiding is interesting by itself (related to Kilenthong-Townsend)

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  - But very different results
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$$n_A^i \geq 0 \quad n_C^i \geq 0 \quad (NN)$$

- Choice variables
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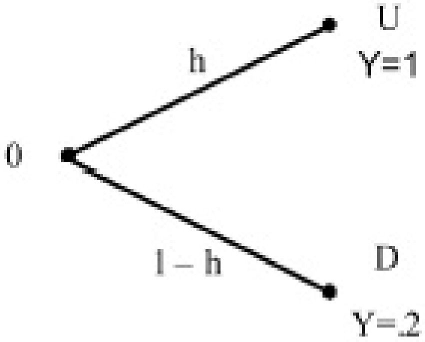
- **Remark**: endogenous margins but exogenous contracts

Comparison to Geanakoplos 2010



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- Geanakoplos utility:

$$V^i = n_C^i + n_A^i \left\{ h^i U + \left(1 - h^i\right) D \right\}$$
$$+ \int n_B^i(\phi) \underbrace{\left[h^i \min\{\phi, U\} + \left(1 - h^i\right) \min\{\phi, D\} \right]} d\phi$$

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- **Remark:** different kinds of disagreement
  - Geanakoplos/Simsek: disagreement about probabilities
  - This paper: disagreement about the *residual value of the asset*
    - Paper uses expression: "disagreement about means"
  - Which form is more plausible? Do they interact?
- Interpretation?
- It would be nice to merge both frameworks

Results

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- **Question:** Is the equilibrium unique?
- **Remark:** Many markets (with many anonymous buyers and lenders) for borrowing contracts against the same asset are traded in equilibrium

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3. **Over-the-counter markets**
   - Opaqueness/Adverse selection + search + bargaining
   - This paper: disagreement/walrasian pricing
   - Not sure whether this papers justifies OTC trading
   - It predicts thick markets on borrowing contracts with different collateral
   - "each borrower is borrowing from a different lender"
   - Also there are OTC markets for noncollateralized assets

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   - In this limit, leverage goes to infinity and the distribution $f(\cdot)$ looks like a uniform. Only the most optimistic agents borrow.
   - Theoretical validity of the approximation?
     - Maybe there is a simple way to bound the common prior solution
   - Sharp prediction
     - Is it really when disagreement goes to zero?
     - Isn't it when the distribution becomes closer to a uniform? (see numerical example?)
   - Are there other interesting limits that can be taken?

Proposition 3 + Dynamics

- This part is very hard to follow

1. **Main result (proposition 3):** when the distribution of beliefs/wealth is a Pareto with coefficient α, the distribution of leverage is a Pareto (?) with coefficient β:

$$\frac{1}{\beta} = \frac{1}{2}\left[1 - \frac{1}{\alpha}\right]$$

   - Is this also a limit result when the distribution converges to a mass point? I believe so (no proof in the paper)
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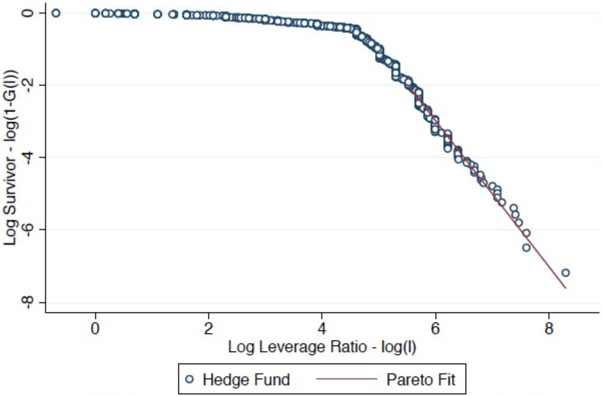
2. **Dynamics**
    - Relies heavily on propositions 2 and 3
    - Example: bounded $\rightarrow$ Pareto $\rightarrow$ Pareto $\rightarrow$ etc
    - Shouldn't highly levered guys go out of business after a negative shock in returns? I think they do
    - But then, how can we apply the approximation??
    - Large literature on survival - focus on long run distributions

Cross section of hedge funds leverage



Source: TASS Lipper Hedge Fund Database (approx. 50% of universe of Hedge Funds).
Cross-section in August 2006.

- Measured as $l = \frac{Debt}{Equity}$

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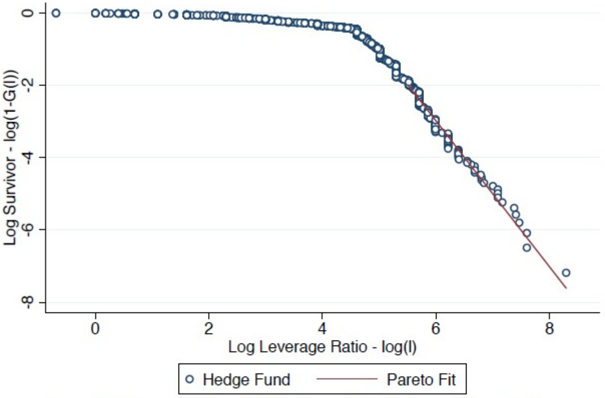

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- Measured as $l = \frac{Debt}{Equity}$
- Are the magnitudes plausible?
- $\log(l) = 8$ implies leverage of 3000 to 1