Discussion

Bankruptcy Exemption of Repo Markets: Too Much Today for Too Little Tomorrow?

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This Paper

- What is a **repo** contract? very short-term collateralized credit
  - Asset transfer ("sale") to lender + repurchase
  - safe-harbor provision = bankruptcy exemption = no automatic stay

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Should repo have a safe-harbor provision? How large?

- **Tradeoff** of $\Uparrow$ safe-harbor provision (q):
  - i) More liquidity ex-ante

    Higher recovery for lenders $\Rightarrow$ better lending terms ex-ante
  - ii) More liquidations ex-post

    Fire-sales $\iff$ distributive externalities $\Rightarrow$ less investment

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    Fire-sales $\Longleftrightarrow$ distributive externalities $\Rightarrow$ less investment
- **Overall assessment**
  - Extremely important question
  - Carefully crafted model w/first-order trade-offs

High-Level Summary

- Date 1 equilibrium [ex-post]
  - Default Decision + Distressed Sale + New Loan Origination
- Date 0 equilibrium [ex-ante]
  - Investment and Borrowing

High-Level Summary

- Ex-ante Welfare Analysis $\Rightarrow$ Main Results
  - **Key Comparative Static:** $\boxed{q}$ as safe-harbor parameter
    - q: probability of not *renegotiating*/liquidating
    - $q \to 1$: Full safe-harbor provision
    - $q \to 0$: No safe-harbor provision

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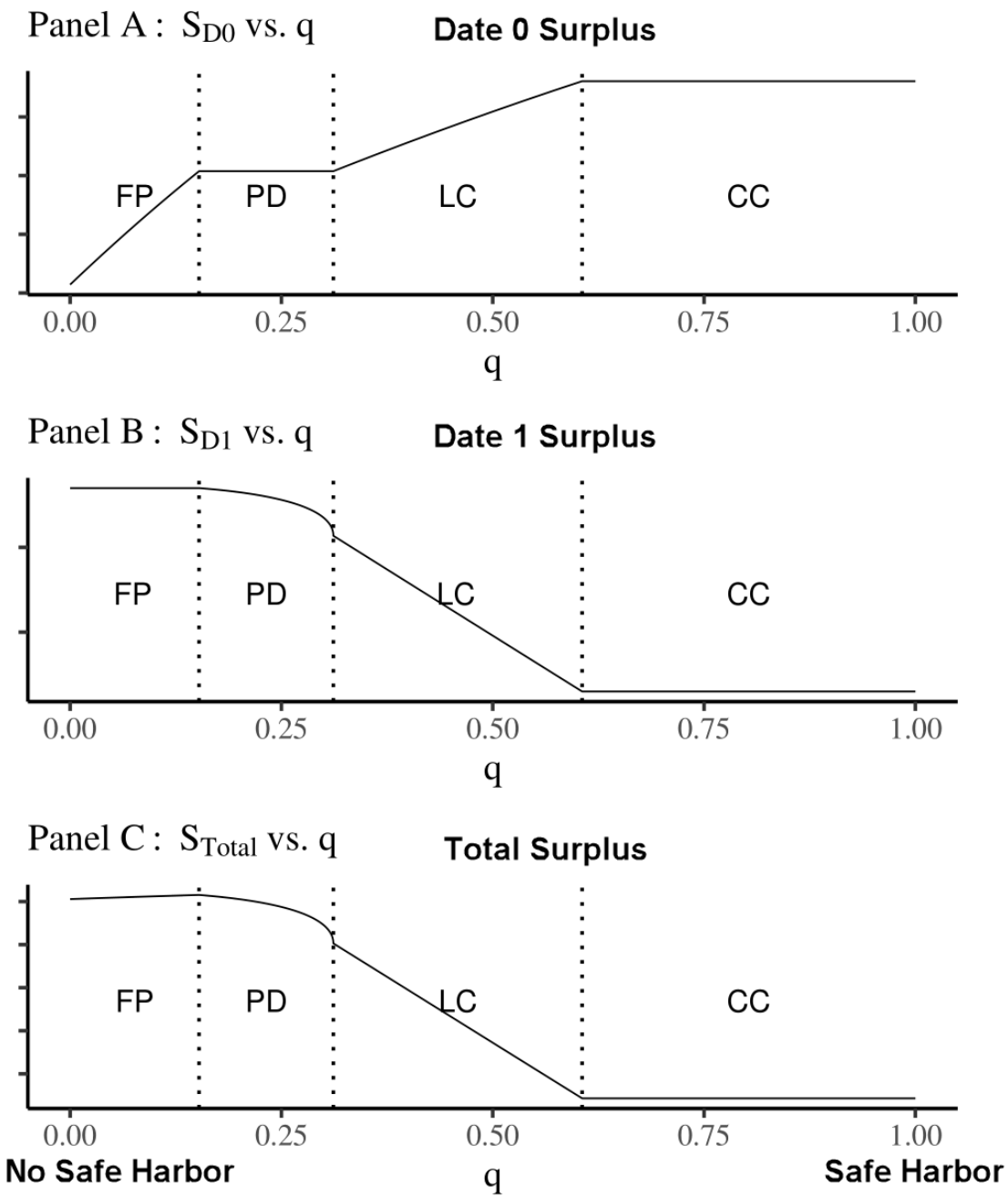
- **Remark #1:** "smooth policy" $q \in [0, 1]$ rather than $q \in \{0, 1\}$
  - Smooth is great!
- **Remark #2:** Is probability of not renegotiating the best way of capturing safe-harbor?

Summary of Welfare Results



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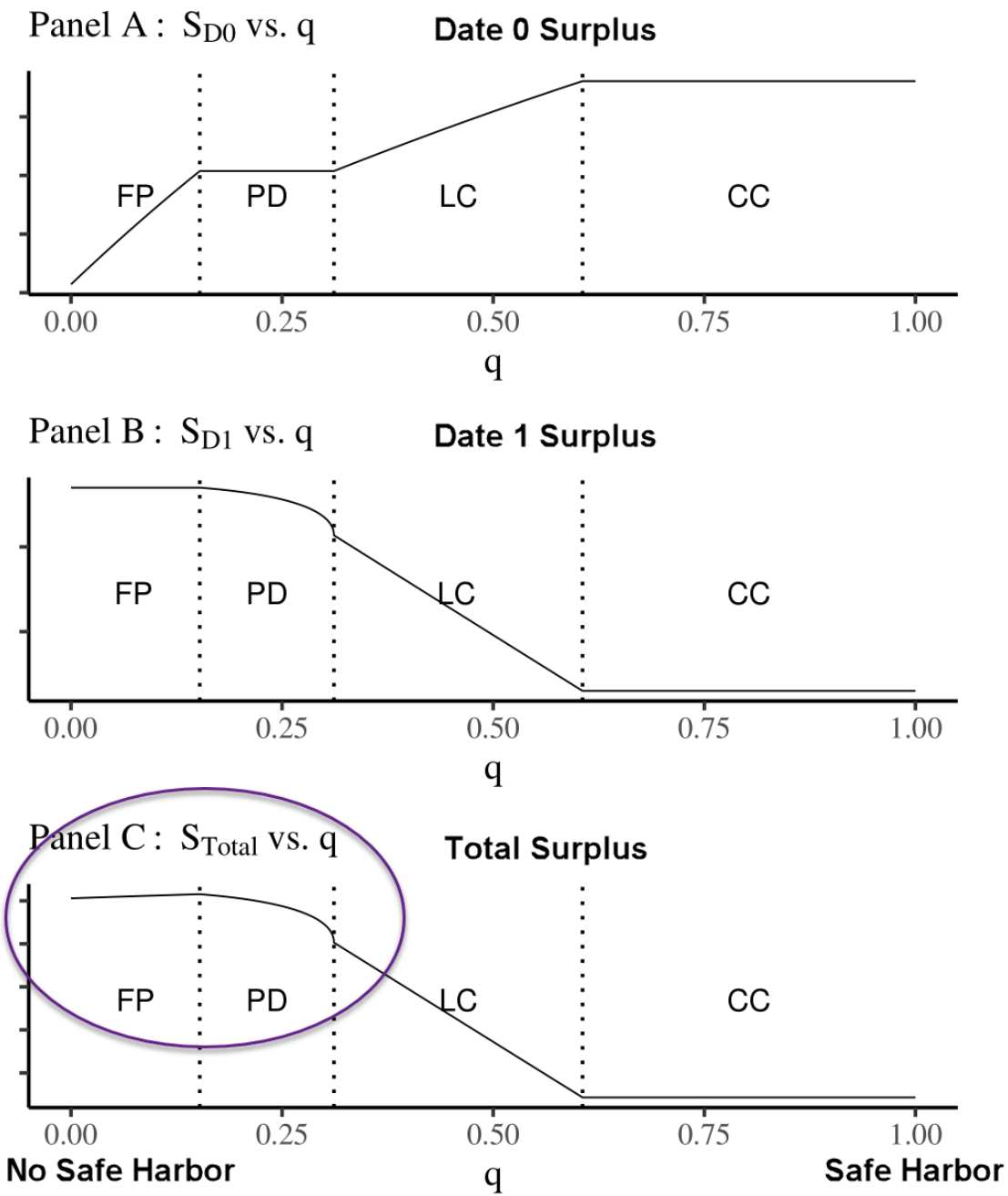

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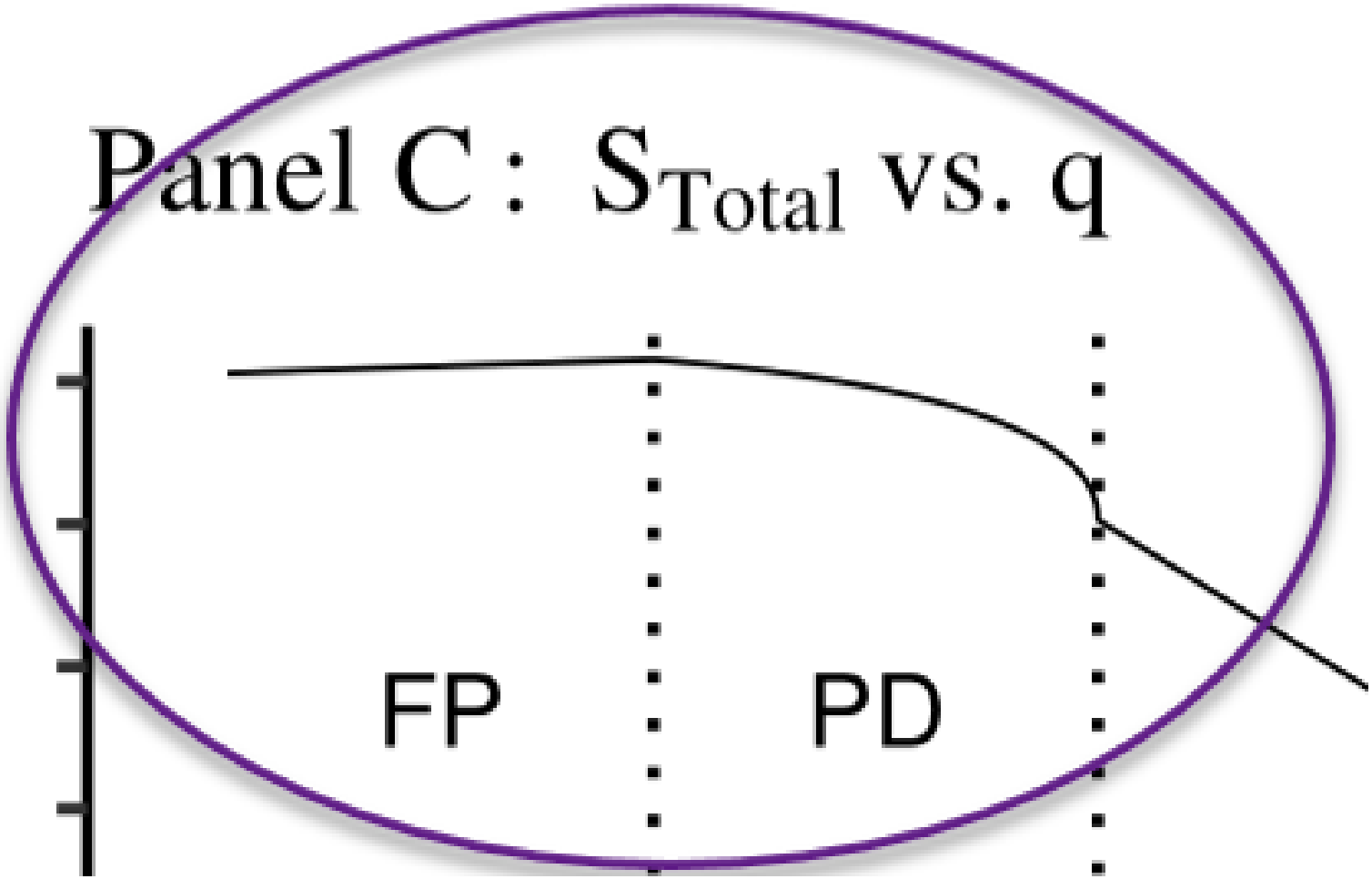

- $q^{opt} = 0.15$ (qualitatively low): status quo is $q = 1$ (!!)
- Optimal $q \Rightarrow$ No Liquidation/Fire-sale

Towards Quantification

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  - Model-based quantification

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  - Model-based quantification
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  Based on "Using Elasticities to Derive Optimal Bankruptcy Exemptions" (2019, RESTUD)
  i) Quantitative modeling
  ii) Direct measurement

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- **Remark #3:** analogy to consumer bankruptcy problem
  - Personal bankruptcy exemption vs. exemption from automatic stay
    Chatterjee, Corbae, Nakajima, Ríos-Rull (2007), Livshits, MacGee and Tertilt (2007)
  - **Tradeoff** of $\Uparrow$ "lender recoverability"
    i) More borrowing/cheaper rates ex-ante [very similar!]
    Higher recovery for lenders $\Rightarrow$ Better lending terms ex-ante
    ii) Less insurance ex-post
    Loss of state-contingency
  - Imperfect analogy
    - secured vs. unsecured credit
    - risk-sharing vs. investment efficiency

Alternative Model: Borrowers

- Risk-neutral borrowers
  - Choose i) borrowing b_1^i at $t = 0$ and ii) default at $t = 1$

$$\text{Date } 0: \quad a^i + c_0^i + k_0^i = n_0^i + \underbrace{Q_0^i\left(b_1^i; b_1^{-i}, h\right)}_{\text{Funds Raised}} + a^i$$

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$$\text{Date } 2: \quad c_2^i(s) = \begin{cases} a^i & \text{if Repay} \\ \max\left\{\left(z_1^i(s) + z_2^i(s)\right) k_0^i - b_1^i, 0\right\} & \text{if Default} \end{cases}$$

Alternative Model: Lenders

- Competitive risk-neutral lenders $\Rightarrow$ Pricing schedule/credit surface

$$Q_0^i\left(b_1^i; b_1^{-i}, h\right) = \beta \underbrace{\int_{\mathcal{N}} b^i dF\left(s\right)}_{\text{Repay}}$$

$$+ \beta h \underbrace{\int_{\mathcal{D}} \overbrace{p\left(\int_{i \in \mathcal{D}\left(\left\{b_1^i\right\}_i\right)} a^i\right)}^{\text{Liquidation Price}} a^i dF\left(s\right)}_{\text{Secured Default Payoff}}$$

$$+ \beta \left(1 - h\right) \underbrace{\int_{\mathcal{D}} \min\left\{\left(z_1^i\left(s\right) + z_2^i\left(s\right)\right) k_0^i, b_1^i\right\} dF\left(s\right)}_{\text{Unsecured Default Payoff}}$$

- Price function $p\left(\cdot\right)$ comes from outside investors (standard)

Welfare Impact of varying h (harbor)

- $\frac{dW}{dh} = \sum_i \frac{dV^i}{dh}$, where optimality (envelope theorem) yields

$$\frac{dV^i}{dh} = \underbrace{\frac{\partial Q_0^i\left(b_1^i; b_1^{-i}, h\right)}{\partial h}}_{\substack{\text{Change in Repo Rate} \\ \text{Holding Borrowing Fixed} \\ >0}} +$$

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- **Remark #4:** paper focuses on collateral liquidations
  - There are also standard asset liquidations ($\frac{dk_0^{-i}}{dh}$)
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- **Remark #4:** paper focuses on collateral liquidations
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- **Remark #5:** my derivation misses other forces
  - Prices enter default decision
    Connects to Amador/Bianchi on runs and fragility
  - Differences in valuation

Final Comments/Remarks

1. **Broader question: Should financial contracts be collateralized or not?**
   - Not just repo: mortgages, CDO's, credit cards? Welfare implications?
   - Answer will depend on context, asset characteristics
   - What if investments have high/low default probabilities? Or collateral has high/low quality?
2. **Seizing vs. liquidating collateral**
   - Paper (and my model!) equate both
     - Default $\Rightarrow$ Collateral liquidation $\Rightarrow$ Fire sale
   - Can we separate seizing from liquidating?
     - Lenders seize the asset (safe-harbor!)
     - BUT asset cannot be liquidated right away (doesn't seem like a big deal for treasuries)

Final Comments/Remarks

3. **How important is the repo collateral fire-sale?**
   - Repo collateral is (typically) a high quality financial asset
   - Say treasuries: what is the size of the fire sale that moves that market?
4. **Ultimate origins of welfare losses?**
   - Pecuniary externalities mask different sources of welfare gains/losses
   - e.g. losses can emerge from worse risk-sharing or worst production (this paper)

Conclusion

- Valuable analysis of a very important question
  - Clear first-order tradeoffs
- More quantification is needed $\Rightarrow$ Doable
- Scope to do more work on repo design and secured/unsecured question

Thank you for your attention