

# Re-use of Collateral: Leverage, Volatility, and Welfare

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# Introduction

- Very nice and very well written paper.
- Question addressed in this paper:  
What does collateral re-use (re-hypothecation) do?
- Answers:
  - ① Increases volatility (monotonically).
  - ② Affects welfare (non-monotonically).

Similar environment as in authors' previous papers:

- BGKS (IER, 2015): Collateral Requirements and Asset Prices.  
The possibility of using assets as collateral increases volatility.

This paper (essentially): More generous use (re-use) of assets/collateral further increases volatility.

- BGKS (JME, 2015): Margin Regulation and Volatility.  
Analyzes the role of margin regulation in similar framework.

# Outline

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- Re-use in the data (skip).
- Model.
- Main results.
- Comments (throughout).

Physical environment and agents:

- Pure exchange,  $\infty$  horizon economy.
- Single perishable consumption good.
- Underlying sequence of shocks  $s^t$ .
- Long lived Lucas tree delivering dividends.
- Two Epstein-Zin (price-taking) agents heterogeneous in RA and beliefs.

**Note 1:** Why irrational agents? What about learning?

**Note 2:** Be more explicit about assumptions, 'agree to disagree'.

## Asset markets:

- Shares in Lucas trees and riskless bond, cannot trade future endowments.
- *Default*: agents can go short & costless default  $\implies$
- *Collateral*: if agent wants to go short in an asset, needs to put up the other asset as collateral.
- *Margin requirements*:  $m_s(s^t), m_l(s^t)$ , by how much collateral value must exceed value of borrowed/shorted asset. Endogeneous (s.t. WLOG no default) or regulated (tighter).
- *Re-use*: at most fraction  $\kappa(s^t)$  of collateral can be used in other transactions, regulated.

**Question:** Is re-use regulation equivalent to margin regulation?

# Quantitative Analysis

- Risk one dimensional: Aggregate endowment  $\bar{e}(s^t)$ , dividends  $0.1 \cdot \bar{e}(s^t)$ , individual endowments identical:  $0.45 \cdot \bar{e}(s^t) \implies$   
Paper is about risk transfer, not about risk sharing.
- Parameter choices:
  - ① Disasters à la Barro and Jin (2009), to get volatility(?)
  - ② High  $IES = 1.5$  for both agents, to get smooth  $rfr(?)$
  - ③  $\beta = 0.975$  to get  $rfr = 1.5\%$  with  $\kappa = 1$ .
- Heterogeneity to get trade (how about survival?):
  - ① Agent 1:  $RA = 2$  and optimistic about disasters.
  - ② Agent 2:  $RA = 4$  and pessimistic about disasters.
- Better justification of the choices? Explicit calibration?

# Benchmark Positive Quantitative Exercise

- Analyze sensitivity to re-use,  $\kappa \in \{0, 0.2, 0.4, 1\}$ .

Table II: Simulation statistics for the model without re-use and with re-use

	no re-use ( $\kappa = 0$ )	$\kappa = 0.2$	$\kappa = 0.4$	free re-use ( $\kappa = 1$ )
mean excess return (in %)	0.32	0.45	0.70	1.1
mean risk-free rate (in %)	2.6	2.3	2.0	1.5
STD risky returns (in %)	4.5	4.7	5.1	6.8
mean stock price	6.3	6.9	7.6	8.4
mean wealth, agent 1 (in %)	34.8	42.5	55.8	74.6
STD wealth, agent 1 (in %)	0.7	1.1	2.0	4.8
mean re-use rate (in %)	0	18.4	36.4	48.7
mean bond holding, agent 1	-4.1	-5.3	-7.0	-8.4



- ① Margin requirements exo or endogeneous? Does it matter?
- ② Is this a good *positive* model? Does it match the data? If so, then sensitivity to  $\kappa$  more relevant.
- ③ Direct data evidence for the mechanism?

Almost all about the fact that agents irrational.

- Statement 1: If welfare evaluated using subjective belief, re-use regulation  $\kappa$  always bad for everybody. Obvious?
- Quantitative results for welfare
  - ① Using objective probabilities, get a hump shape in  $\kappa$ .
  - ② Hump shape also for convex combos of agent 1 and 2 beliefs.
  - ③ Robustness to parameterization unclear.

Two ways to go:

① Rational agents.

- Re-use increases volatility (main result), but good for welfare (secondary result). Figure X. interesting.
- More empirical work would be useful.
- More explicit welfare comparison to first best possible/useful. Re-use as making markets more complete?

② Irrational agents.

- Re-use still  $\uparrow$  volatility, welfare analysis more interesting.
- Interaction between beliefs (welfare criteria) and frictions interesting, alternative decompositions?
- Almost seems like a second paper.

**Note:** In either case, robustness to parameterization unclear.  
Theoretical results in a stylized environment?

# Summary

- Nice paper addressing an important question and offering interesting answers.
- Most important conclusions:
  - Asset return/price volatility larger with collateral re-use.
  - Welfare non-monotonic - allow re-use, but regulate.
- Suggestions:
  - Robustness.
  - Theoretical results.
  - Tighter link to the data.
  - Add production?

# Figure X.

Welfare with heterogeneous, but rational agents.

Figure X: Welfare changes as a function of the re-use parameter

