An incentive theory of counterparty risk, margins, and CCP design

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Increasing role of secured transactions

Turnover in euro money market

Share of transactions (%)

Unsecured  |  Secured
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2003 | 60
2006 | 60
2009 | 80
2012 | 90
2015 | 90

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Increased role of cleared secured transactions

Turnover in secured euro money market

Share of transactions (%)


- Bilateral repo (no CCP)
- Bilateral repo (CCP)
- Triparty repo
Collateral availability matters, esp. in times of stress

Govt. bond yields relative to storage at central bank

- Bond yields in percent (%)
- Time (Jan2006 to Jan2016)

Lines:
- Germany 3m Yield (blue)
- Italy 3m Yield (red)
- ECB Deposit Rate (black)
CCPs help to make efficient use of collateral

Netting benefits

Better information
– Addresses externality from non-exclusive contracting (Leitner, 2012; Acharya & Bisin, 2014)

Improve on margin setting
– Pooling of risk reduces need for collateral (Biais, Heider & Hoerova, 2012)
– Can design and implement the “optimal contract” (Biais, Heider & Hoerova, 2016)
Agents trade to share risk

Basic friction: unobservable risk management

If position becomes an expected liability $\rightarrow$ incentive to shirk on risk management

To realign incentives $\rightarrow$ margin call (post cash)

Benefit: no risk management problem with cash

Cost: not investing the cash
Optimal margin trades off

- Benefit of more incentive-compatible risk-sharing
- Opportunity cost per unit gain of pledgeable return

![Diagram showing the trade-off between optimal margins and pledgeability gain](image-url)
Worse governance of counterparty $\rightarrow$ larger pledgeability gain $\rightarrow$ larger margin
Less consumption in good state $\rightarrow$ higher marginal utility in good state $\rightarrow$ smaller need for risk sharing $\rightarrow$ smaller margin
The case for regulating margins

Negative feedback loop

Bad news → Margin calls → Asset sales

Higher margins → Depressed asset prices

Fire-sale externality (Biais, Heider & Hoerova, 2015)

- Can be amplified by marking positions to market (Brunnermeier & Pedersen, 2009)
- Affects both cost and benefit → multiple equilibria (financial instability)
The case for regulating margins

Regulator can internalize the fire-sale externality

- Margin cap (position limits) to reduce excessive margining
- Like leverage ratio or counter-cyclical capital (Lorenzoni, 2008; Geanakoplos, 2010)
A lot of progress on making CCPs more resilient

- PFMI, EMIR, CCP colleges, CPMI-IOSCO stress testing

But as often in regulation, little emphasis on incentive issues

Open issues

- What is the optimal governance of CCPs?
- What is their optimal scope?
- How should they interact with the central bank?
  - Access to central bank lending
  - Access to central bank storage