Margin and Haircut: Transparency, Fire-Sale Risk, and Procyclicality

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1. Data and transparency
2. Fire-sale risk
3. Procyclicality of margin and haircut
4. Measures to relax collateral/haircut constraints

Why data and transparency matter

- Improve the measurement of risk and help price discovery
- Reduce information asymmetry and uncertainty in times of distress
- Decentralize decisions-making to the market

Data

Existing public data on margin and haircut:

- ISDA margin survey on OTC derivatives (annual)
- FRBNY tri-party repo data (monthly)
- FRBNY primary dealer financing activity (weekly)
- Margin/haircut schedules of CCPs (CME, ICE, DTCC, LCH, etc.)
- Other occasional surveys

Not in the public domain:

- OTCD margin and haircut, both cleared and non-cleared, at relatively high frequency (weekly or daily)
- Tri-party repo margin and haircut at daily frequency
- Bilateral repo margin and haircut

Few academic studies use actual margin data. ▸ Examples

Fire-sale risk

Composition of collateral types in 2014

	Cleared OTCD	Non-cleared OTCD	Tri-party Repo	Bilateral Repo
Cash	≈60%	≈75%	—	—
Sovereign debt	≈30%	≈15%	≈1/3	≈ 80%
Agency	small	small	≈1/3	
Other	≈10%	<10%	≈1/3	
Data source	ISDA	ISDA	FRBNY	*

* Estimate by Copeland, Davis, LeSueur, and Martin (2014).

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Market liquidity and collateral use in Dec. 2014

	Daily Volume ($B)	Tri-party Collateral ($B)	Tri-party Median Haircut
Corp. IG	13.1	53.36	5%
Corp. HY	8.8	24.34	8%
Agency MBS	177.0	442.88	2%
Equities	283.5	160.38	8%

Data source: SIFMA, FRBNY, and KCG

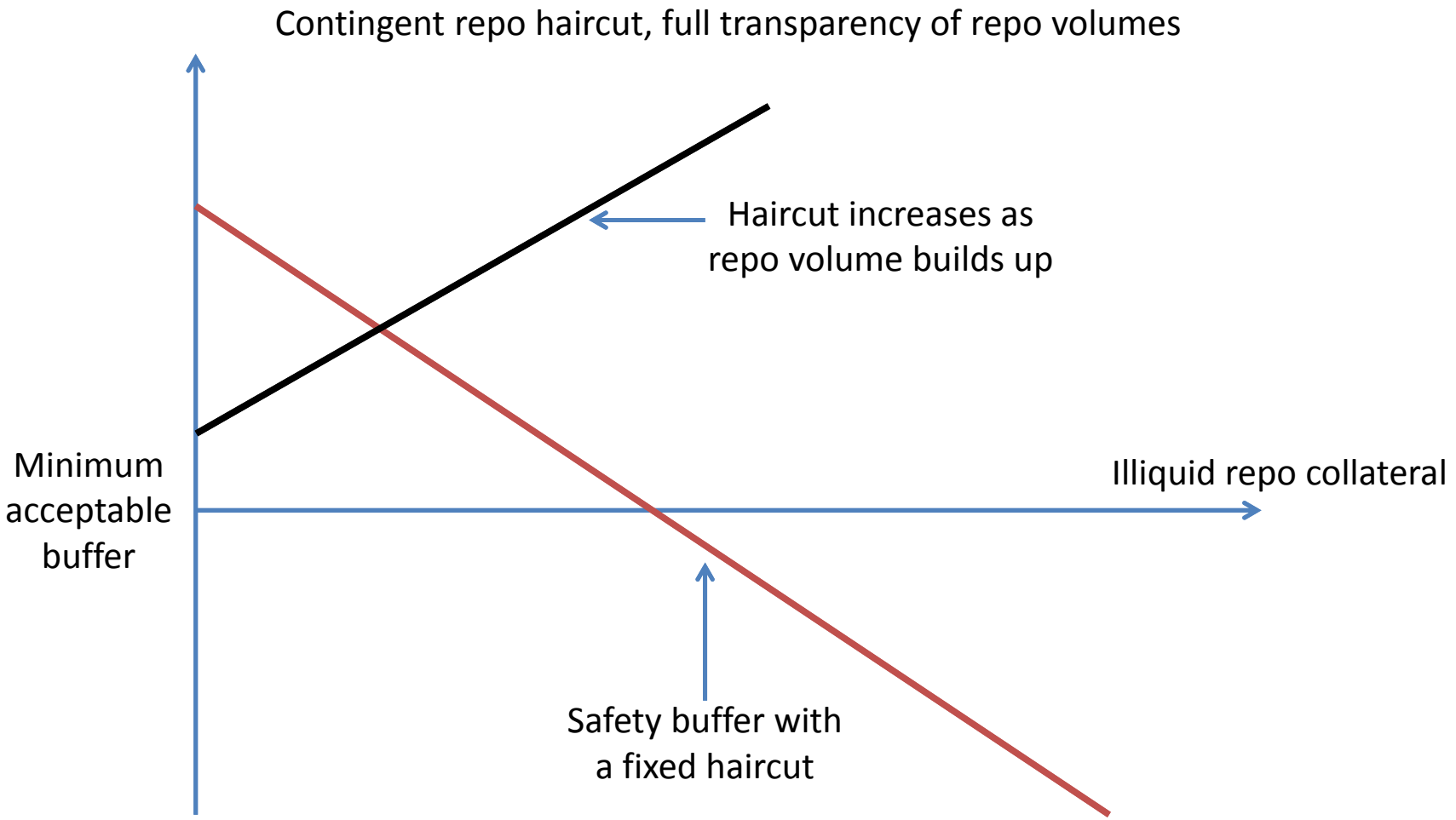
Fire-sale risk depends on market structure and liquidity

- Cash and Treasuries have little fire-sale risk. Treasuries tend to rally in market distress, except in rating downgrade or hyperinflation.
- Corporate bonds and agency MBS have nontrivial fire-sale risk.
- For corporate bonds, Volcker Rule and capital requirement limit dealers liquidity provision. Transition to electronic trading and broader investor participation takes time.
- Equities appear safer given the secondary market liquidity. But beware of sudden drop of liquidity as in Flash Crash.

Procyclicality of margin and haircut

- Risk-based margins and haircut tend to be high in distress times and low in calm times.
- It is difficult to set margin/haircut in real time based on business cycle.
- It is easier to set margin/haircut based on collateral outstanding, a proxy for the "crowdedness" of repo lending and maximum fire-sale quantity.
- Do CCPs and lenders have sufficient, verifiable information to adjust margin and haircut? E.g. How "crowded" is repo lending against certain collateral?
- Do CCPs and lenders have enough incentive (e.g. skin in the game) to keep high margin and haircut standards? E.g. Do CCPs put enough of their own equity in the default waterfall?
- If both answers are yes, the market-determined margin and haircut should mitigate procyclicality problem.

- With sufficient transparency and right incentives, a high repo volume encourages tighter margin/haircut standards, stabilizing the systems.



Measures to relax collateral/margin constraints

Direct reduction of exposures:

1. Standardization of products (CDS Big Bang and IRS MAC)
2. Trade compression (eliminate redundant cycles of exposures)
3. Central clearing, cross-margining and netting (Duffie and Zhu 2011)
4. Shorten settlement cycles (e.g. $T + 2$ in European equity and the $T + 2$ plan in U.S.)

Credit risk transfer:

5. Rehypothecation (hidden chains of exposures)
6. Collateral transformation (risk of "runs" on illiquid collateral)

More ways to increase the efficiency use of collateral and haircut?

7. Intraday clearing?

8. Joint optimization of margin and haircut?
   - "Right way" collateral in margin account should receive favorable haircut. "Wrong way" collateral get the opposite.
   - Haircut can be used to encourages hedging/diversification.

   Example:
   - A's swap position loses money if Treasury rallies. B's swap position loses money if Treasury sells off.
   - If A and B both use Treasury as collateral, A should receive more favorable haircut than B.

Three nudges

- Improve transparency on margin, haircut, and repo volumes
- Provide market participants sufficient incentives to set robust margin/haircut standards
- Tackle the fire-sale risk problem together with secondary market liquidity problem

Academic studies that use actual margin or haircut data:

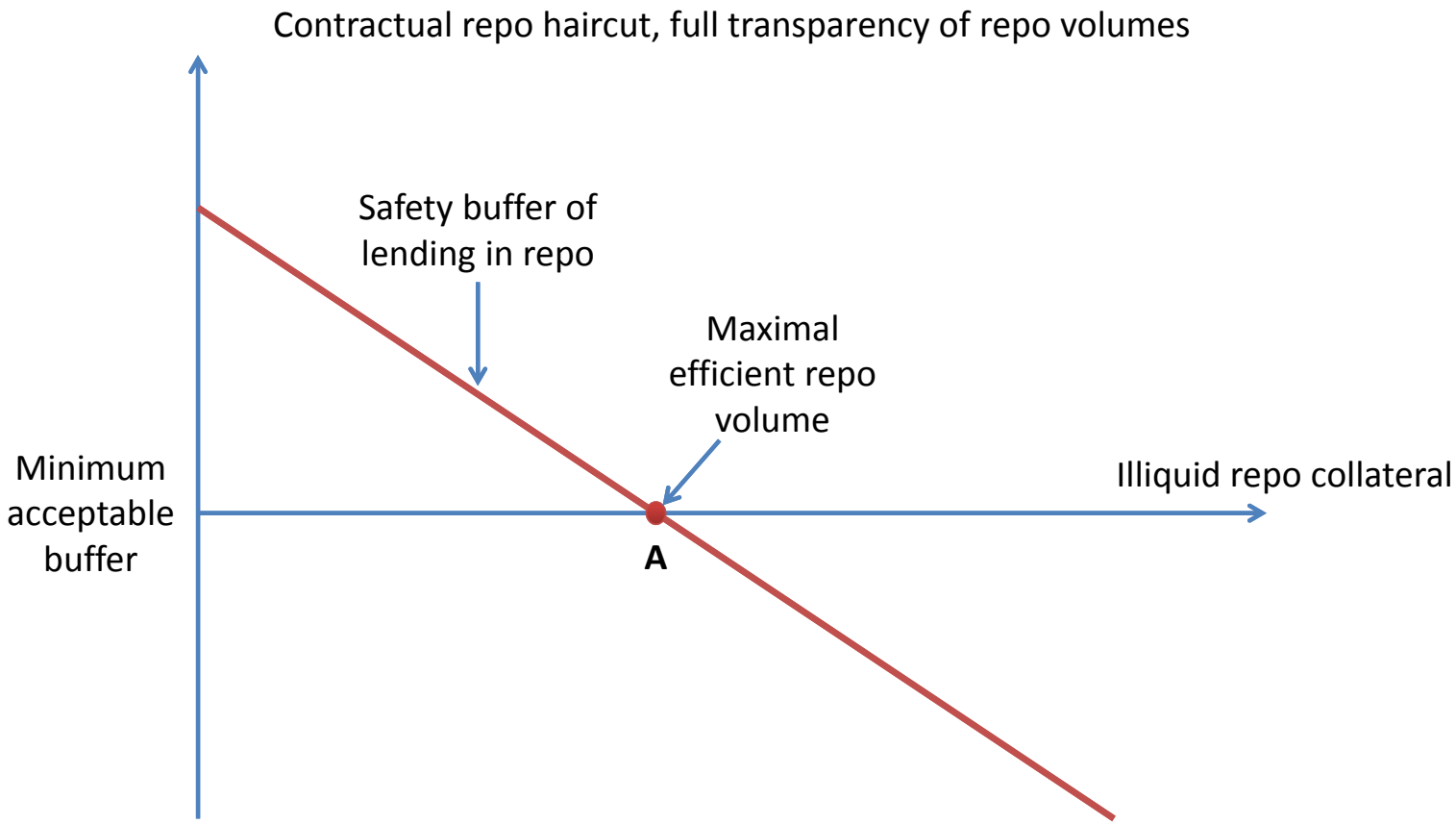
- Gorton and Metrick (2012): Haircut schedule of dealer banks, January 2007–January2009
- Jones and Pérignon (2013): CME margins, January 1999–December 2001
- Copeland, Martin, and Walker (2014): FRBNY data on tri-party repo and confidential survey data on bilateral repo, July 1, 2008–January 27, 2010.
- Menkveld (2014): European Multilateral Clearing Facility (EMCF) data on margins on Dutch equity trades, October 19, 2009–September 10, 2010.

Academic studies that use actual transactions or volumes:

- Duffie, Scheicher and Vuillemey (2014): DTCC data on actual bilateral exposures on selected CDS names, December 30, 2011.
- Lopez, Harris, Hurlin and Pérignon (2014): Canadian Derivatives Clearing Corporation data on derivatives positions, January 2, 2003–March 31, 2011.
- Krishnamurthy, Nagel and Orlov (2014): MMF repo data (mostly tri-party) from SEC filing and survey data on security dealers from Risk Management Association, January 2007–June 2010.

▸ Back

- With sufficient transparency, repo volume should adjust to fire-sale risk, stabilizing the system.



- If transparency is limited, repo volume could be too low (inefficient) or too high (unstable).
- Lumpy information flow may generate sudden risk-taking or unwinding.