

Funding liquidity, market liquidity and TED spread: A two-regime model

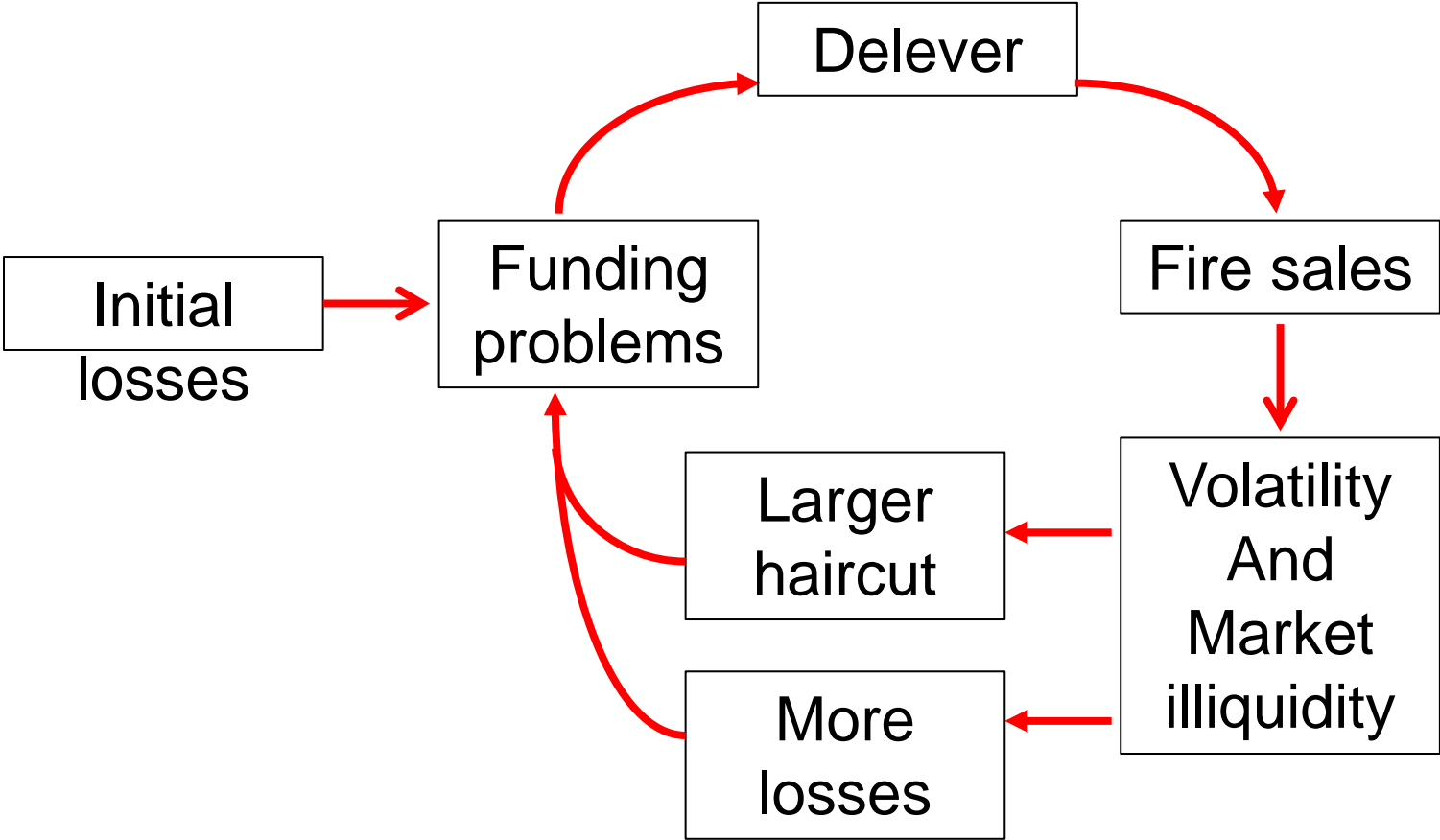
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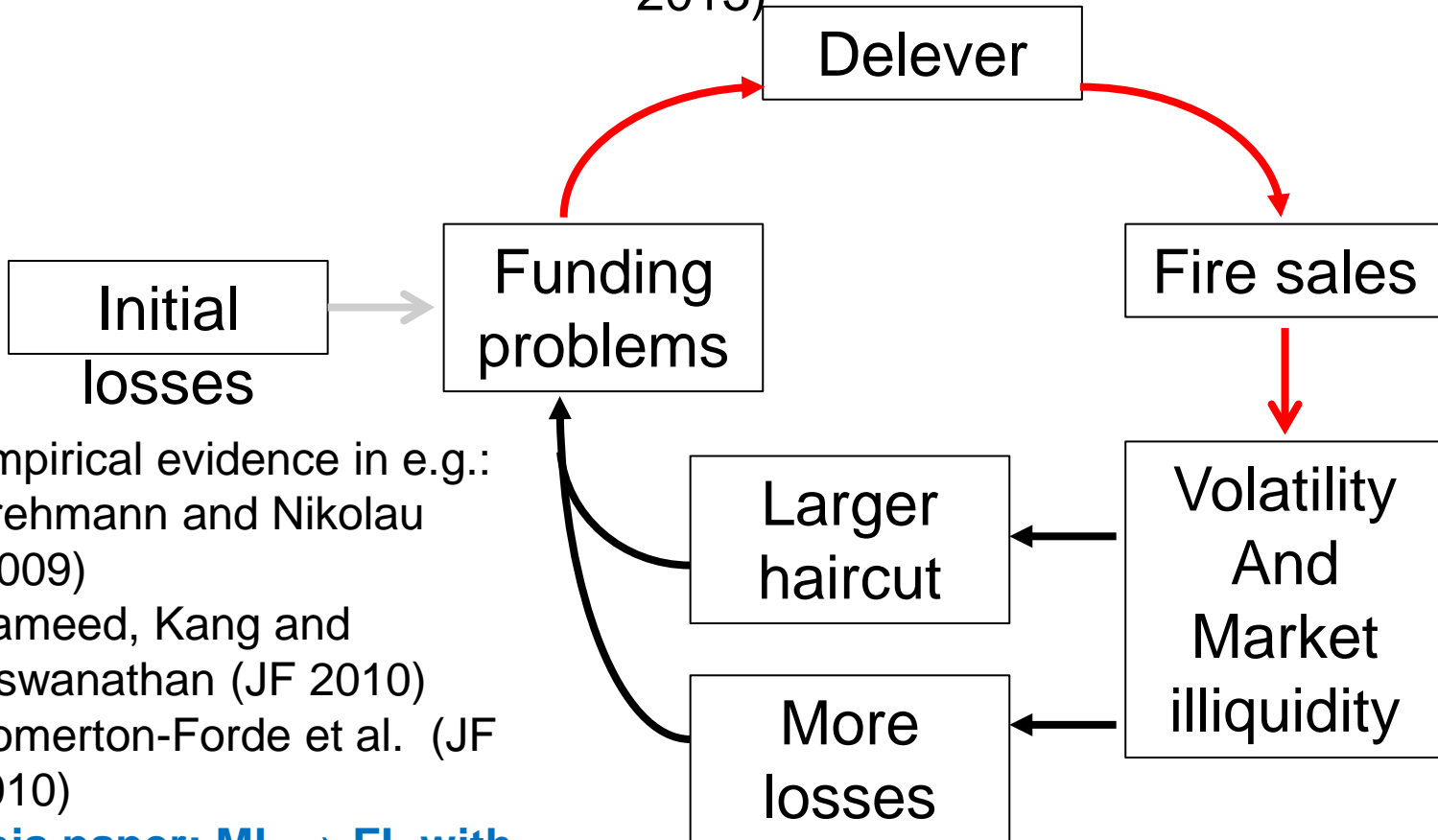
Main mechanism



Brunnermeier & Pedersen RFS 2009

Main mechanism

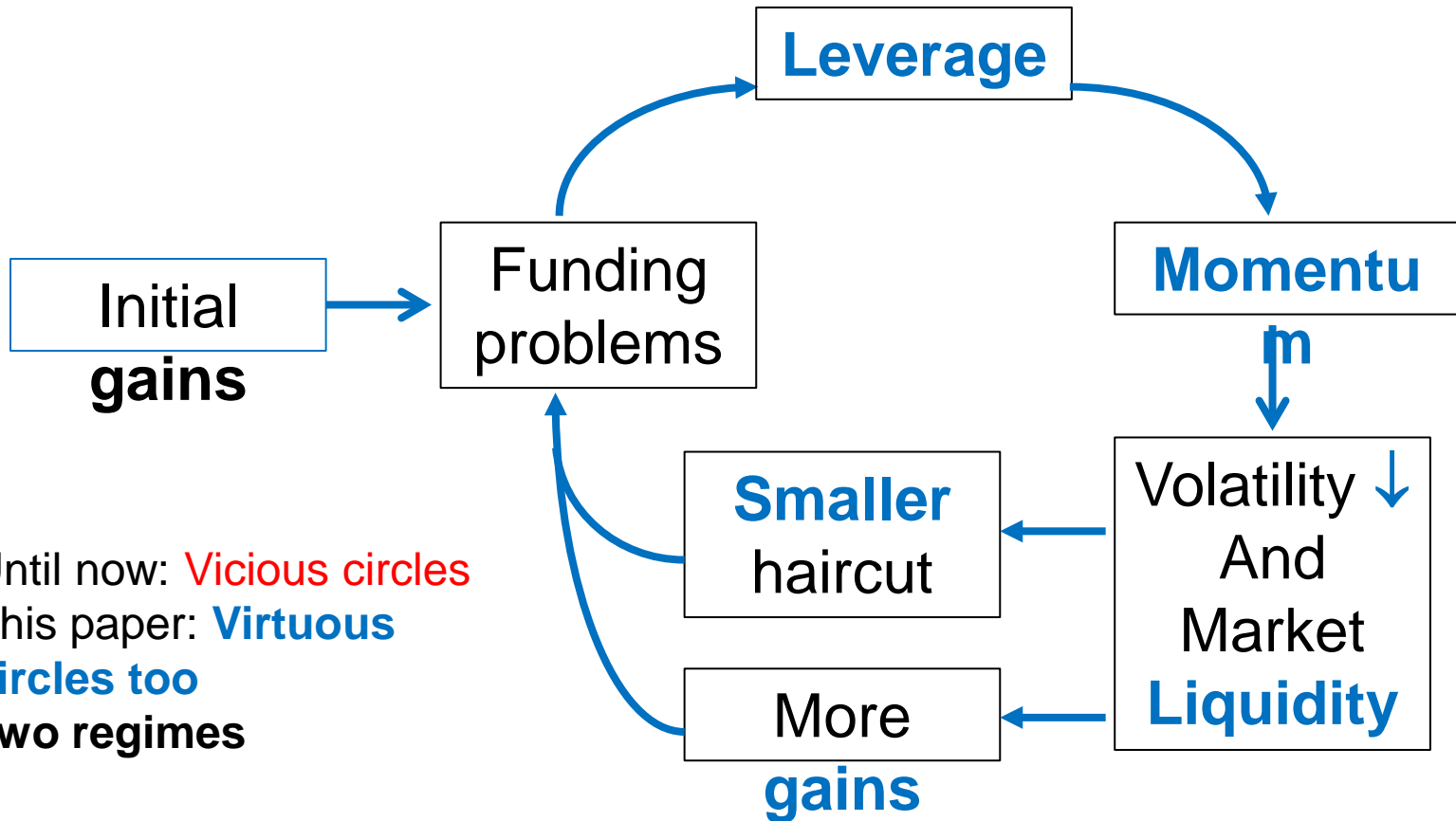
Empirical evidence in e.g.:
Mancini, Rinaldo and Wrampelmeyer (JF 2013)



Empirical evidence in e.g.:
Drehmann and Nikolau (2009)
Hameed, Kang and Viswanathan (JF 2010)
Comerton-Forde et al. (JF 2010)

This paper: ML → FL with endogeneity FL → ML
Brunnermeier & Pedersen RFS 2009

Virtuous circles



Until now: **Vicious circles**
This paper: **Virtuous circles too**
Two regimes

Comments

- Incomplete picture and omitted variables
- Identification issues and econometric models
- (Connection to the theoretical literature)

Incomplete picture

Hypothesis 1: loan rates depend on expected value of equity collateral (ML, σ , TED).

Two main drivers:

- Underlying security (“specialness”); main focus of this paper. But also:
- **LIQUIDITY !!!**

Incomplete picture

$$fundilliqt = \log \left(\frac{\sum_{i=1}^N Trades_{it} \times VWAF_{it} \times \mathbb{1}_{DS,it}}{\sum_{i=1}^N Trades_{it} \times \mathbb{1}_{DS,it}} \right)$$

How will a tighter credit react to risk?

1. Higher interest rates
2. Reducing volumes
3. **Safer collateral securities**
4. **Increasing haircuts**
5. **Shortening maturity exposure**
 - Mancini, Ranaldo and Wrampelmeyer (WP 2013) on Euro interbank repos
 - **All** matter (rates, volume, haircuts, maturity) not only 1 and 2
 - **Central bank liquidity** is one of the main drivers; see also Dunne, Fleming and Zholos (2012) on ECB auctions

Incomplete picture

Hypothesis 3: In tranquil markets, $ML \downarrow \rightarrow$ lending rates \downarrow

- Why? No theory (including BP 2009) suggests this!
- $P \cong$ fundamental $\rightarrow \sigma \downarrow$, $ML \uparrow \rightarrow$ Lending rates \downarrow not \uparrow
- Attract customers? In tranquil markets, MM dealers believe that stock market illiquidity is due to only genuine liquidity shocks (i.e. no asymmetric information) ...
- Is this result significant?

Incomplete picture

Independent Variables	Estimator	Linear Model		Two-Regime Model	
		OLS	IV	OLS	IV
<i>(intercept)</i>		4.732 (0.516)	8.399 (2.746)	2.594 (0.665) [1.239 ; 4.054]	-26.327 (18.332) [-90.913 ; 25.638]
<i>mktilliq_t</i>		0.323 (0.0645)	0.790 (0.348)	0.014 (0.082) [-0.152 ; 0.202]	-3.612 (2.283) [-11.690 ; 2.788]
<i>vol_t</i>		6.263 (0.655)	4.953 (1.290)	5.192 (0.652) [3.782 ; 6.776]	<i>13.093</i> (7.240) [-4.809 ; 33.909]
<i>volsq_t</i>		-4.550 (0.894)	-3.627 (1.206)	-8.303 (0.924) [-10.458 ; -6.150]	-6.818 (6.712) [-26.888 ; 16.820]
<i>ted_t</i>		0.012 (0.042)	-0.174 (0.134)	0.717 (0.292) [0.117 ; 1.468]	3.965 (1.962) [-4.100 ; 12.460]
<i>stress_t</i>				2.466	<i>40.553</i>

Identification problems

- Fundilliq: Broker collateralized loan rate minus T-bills. The “Call Money Rate” published in the WSJ.
 - Never used before. Tell me more about it!
- mktilliq: Mean bid-ask spread for S&P 500 (from CBOE)
 - Why not expected ML? Why not other measures e.g. Amihud (2002)?
- aaaliq: IV, Δ (short-term AAA bond yields - LIBOR): Control for flight to liquidity within AAA credits.
 - You have done everything in levels. Why this in changes?
- durtrend: IV, trend: monthly mean time b/w Nasdaq trades.
 - Why quadratic? Economic reason? Still support to HP3 if linear?

Related literature: limits to arbitrage

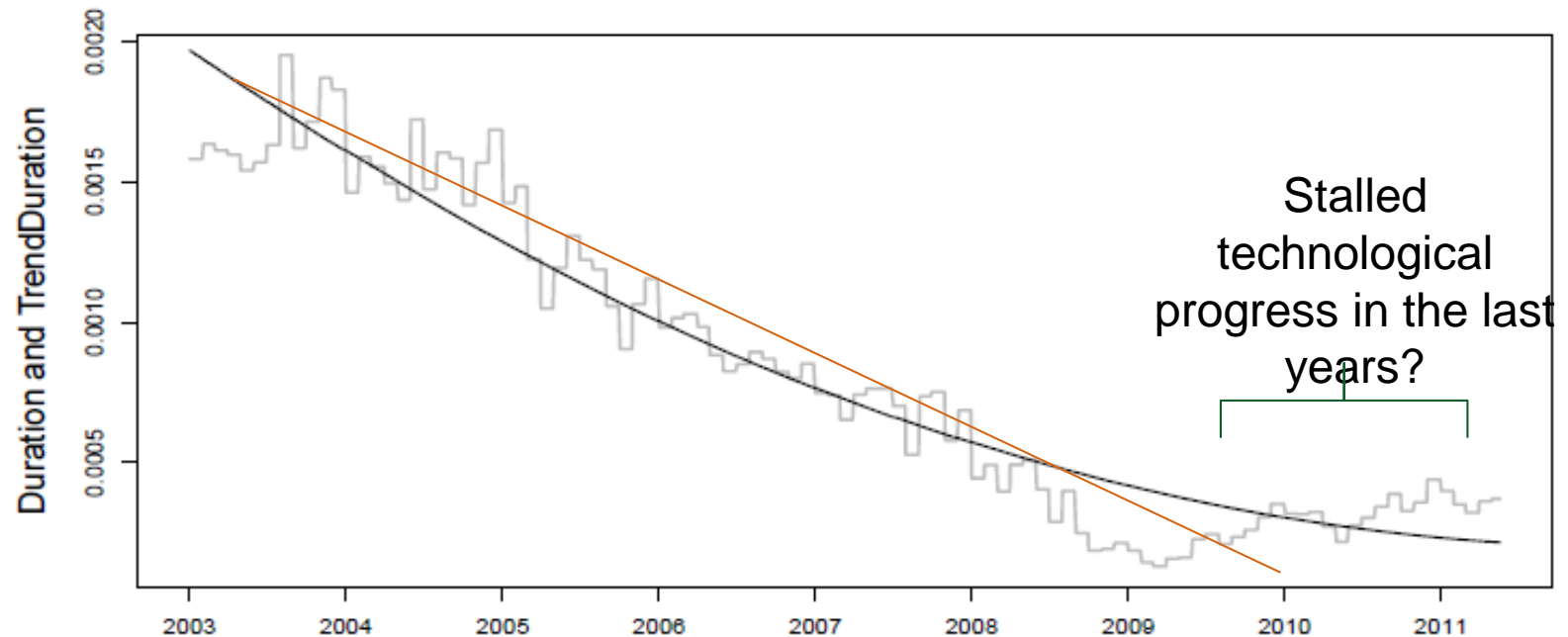


FIGURE 6: DURATION BETWEEN US STOCK TRADES AND ITS LONG-TERM TREND FEBRUARY 2001–MAY 2011. The gray line shows the inter-trade duration; the black line shows the trend.

Econometric issues

- Why not **lagged** funding liquidity? Having a AR process would be not only empirically relevant but also much more consistent with the theory
- Why not **other econometric models**, e.g. VAR or logistic smooth transition regression methodology (LSTAR) as in Christiansen, Rinaldo and Söderlind (JFQA 2011)? Regime - switching model as e.g. in Acharya, Amihud, and Bharath (JFE forthcoming)? ...

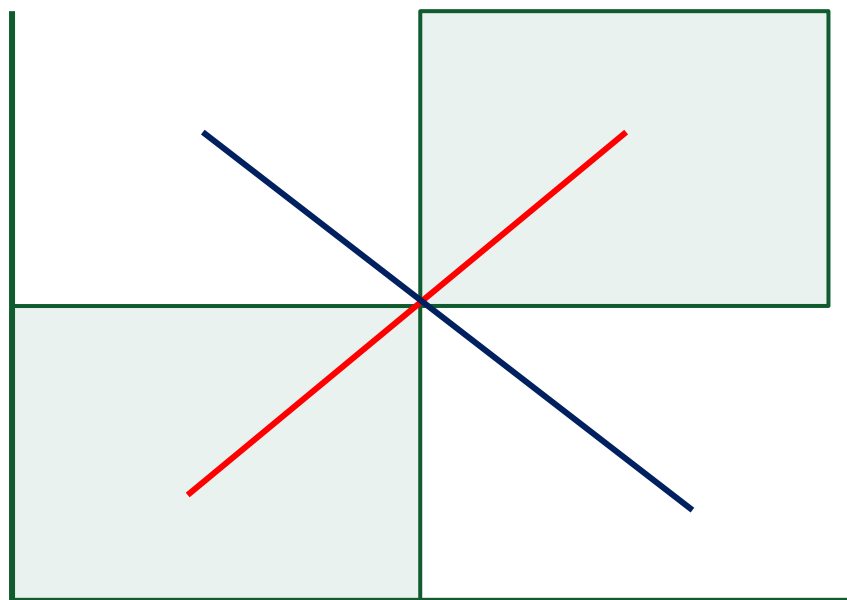
Connection to the theory

- Theory
- **Brunnermeier and Pedersen (2009)**, Gromb and Vayanos (2002, 2010)
- Morris and Shin (2004), Vayanos (2004), Garleanu and Pedersen (2007), Acharya and Viswanathan (2011), ...
- This mechanism can spill over across various asset classes (e.g. Xiong (2001) and Kyle and Xiong (2001))

Incomplete picture

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Loan rate



Quantity of
stock on loan



University of St. Gallen

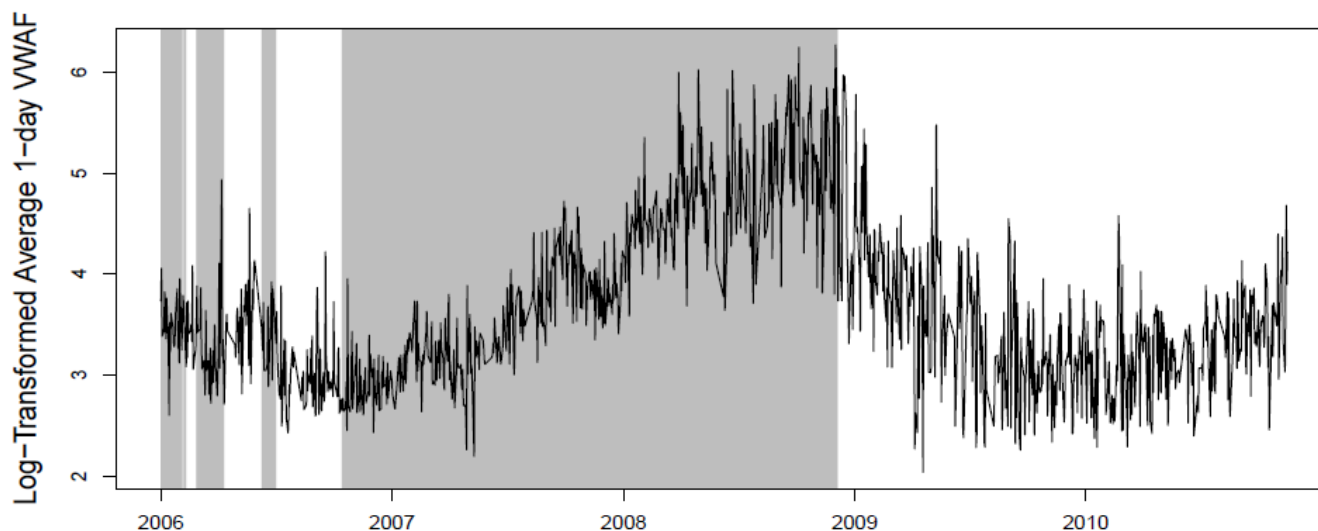
Haircuts

- At least, consider or discuss haircuts
- Repo in the United States:
 - Run on repos (Gorton and Metrick, 2010a,b, 2012a,b)
 - Credit crunch (Krishnamurthy, Nagel, and Orlov (2013) and Copeland, Duffie, Martin, and McLaughlin (2012)).
- MBS-GC haircuts: e.g. Mancini-Griffoli and Ranaldo (2011)
- Mancini, Ranaldo and Wrampelmeyer (WP 2013): haircuts are pretty stable for safe collateral

Incomplete picture

Hypothesis 2: two regimes depending on the TED

Why not three? Why the TED? Robust to other measures of funding strains? Essentially two periods?



Incomplete picture

More about “specialness”:

- **Seasonalities**, e.g. expiration times in derivative markets
- **Supply** of securities (issued / outstanding)
- **Short selling** constraints, see ban on short selling for nearly U.S. 800 financial stocks in 2008
- **Cross-sectional** differences, in particular most liquid stocks; see e.g. Nyborg and Österberg (JFE forthcoming)

Incomplete picture

Hypothesis 4: In jittery markets, $ML \downarrow \rightarrow$ lending rates

↑

Now you're talking ...