

# Repo Market Effects of the Term Securities Lending Facility

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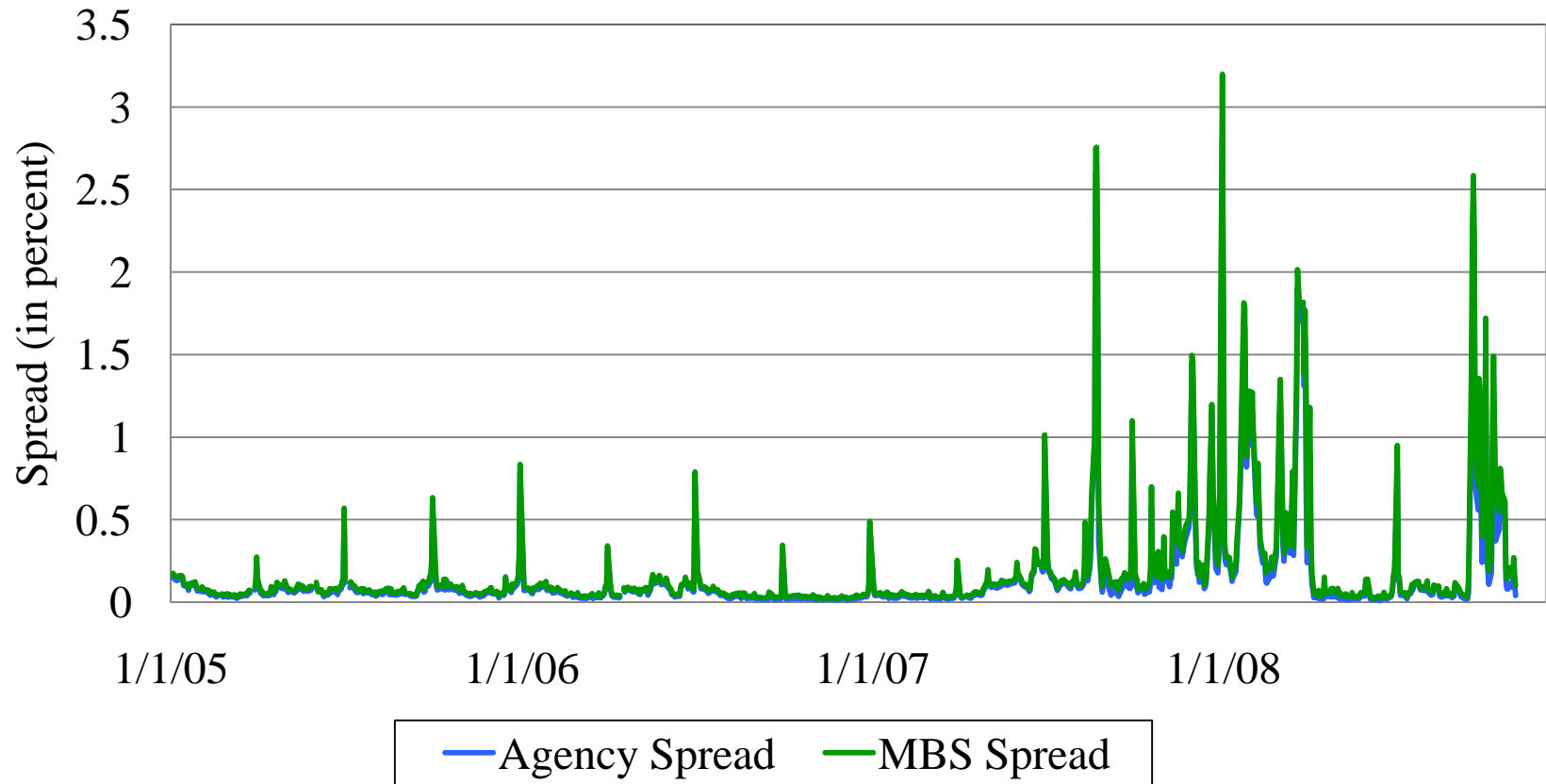
# Introduction

- Assess effects of TSLF, introduced March 11, 2008
- TSLF allows primary dealers to bid a fee to borrow Treasury securities for 28 days against pledge of other securities
  - Dealers can use borrowed securities as collateral to obtain cash
- TSLF promotes liquidity of secured funding (repo) markets
- Such markets widely used by dealers to finance positions
- Such markets play crucial role in efficient capital allocation

# Background to TSLF

- Secured funding markets became impaired in early 2008
  - Increased haircuts, higher rates, withdrawal from market
- Disruptions compel dealers to seek alternative sources of funding or liquidate positions, or file for bankruptcy
- TSLF introduced in this environment of market stress
- TSLF increases ability of dealers to obtain financing
- TSLF could also be expected to affect markets directly

# Figure 1 – Repo Spreads



## Related Literature

- Paper most related to work examining effects of TAF
  - Analysis of TSLF may provide cleaner test of liquidity facility effects
  - Overnight repo rates and spreads highly sensitive to floating supply of securities in market *on that day*, mitigating endogeneity issues
- Also related to work assessing supply effects more generally
  - We relate underlying supply of securities to financing costs
- Also related to work on repo market
  - That work primarily examines financing costs for particular securities

## Remainder of Talk

- Hypotheses
- TSLF and repo rate data
- Empirical results
- Conclusions

## Hypotheses - Background

- Analysis focuses on repo rates and spreads, and, in particular, effects of changes in collateral supply
- Premise is that an increase (decrease) in the amount of collateral available to the market should decrease (increase) its marginal value, resulting in a higher (lower) repo rate

# Hypothesis 1

- TSLF allows dealers to swap lower quality collateral for Treasury collateral
- To the extent the TSLF is utilized, supply of Treasury collateral available to market should increase, reducing the collateral's scarcity value, causing Treasury repo rates to rise
- *H1: Changes in the amount outstanding under the TSLF are positively related to Treasury GC repo rates*



## Hypothesis 2

- Use of TSLF should reduce supply of lower quality collateral available to private market, increasing its scarcity value and causing repo rates on such collateral to decline
- Effect on repo rates *for which we have data* is ambiguous and/or contingent on collateral eligible to be pledged
- *If* such rates rise, they should rise less than Treasury repo rate
- *H2: Changes in the amount outstanding under the TSLF are negatively related to agency and agency MBS repo spreads*

## Hypothesis 6

- TSLF effects depend on market conditions and, in particular, on the level of repo rates relative to the fed funds rate
- Repos are secured, fed funds transactions are not
  - ⇒ Overnight repo rate nearly always  $<$  fed funds rate;  
fed funds rate effectively puts a cap on repo rate
- *H6: The effects of changes in the amount outstanding under the TSLF on repo rates and spreads increase with the spread between the fed funds rate and the Treasury repo rate*

# Data

- All 37 TSLF operations from March 27 to October 30
- TSLF options sold and exercised
- Daily repo rates from New York Fed's trading desk
  - Treasury, agency, and agency MBS collateral
- Daily repo rates from Bloomberg
- Daily Treasury issuance/redemptions; corporate yield spreads

## Empirical Results - Background

- Regress changes in *overnight* repo rates and spreads on changes in amount outstanding under the TSLF
- Focus on settlement days, when rates are affected by supply
- Change in amount outstanding = amount awarded in operation settling that day - amount maturing that day
  - Include amounts exercised through TSLF Options Program
- Include dummy variables for first and last days of quarter

## Table 2 – TSLF Effects on Repo Rates and Spreads

	Dependent Variable: Change in Overnight Rate/Spread				
Independent Variable	Treasury Rate	Agency Rate	Agency MBS Rate	Agency Spread	Agency MBS Spread
Constant	-1.03 (1.94)	-1.06 (1.54)	-0.90 (1.54)	-0.03 (1.85)	0.13 (2.02)
TSLF	0.97*** (0.19)	0.66*** (0.15)	0.43*** (0.15)	-0.31* (0.18)	-0.54*** (0.20)
Quarter End	-54.44*** (14.42)	8.64 (11.47)	23.28** (11.46)	63.08*** (13.77)	77.71*** (14.99)
Quarter Beginning	58.81*** (14.42)	-21.75* (11.47)	-31.79*** (11.46)	-80.55*** (13.77)	-90.60*** (14.99)
Adjusted R <sup>2</sup>	24.1%	10.6%	9.1%	24.8%	28.8%

## Other Results

- Results supportive of hypothesis that effects are greater when fed funds/Treasury repo spread is wider
- Results generally supportive of other hypotheses
- Results robust to split sample test and to inclusion of other control variables such as corporate credit spread
- Treasury issuance and redemptions also found to affect Treasury repo rates and repo spreads

# Conclusions

- Evidence suggests TSLF narrows financing spreads between Treasury collateral and lower quality collateral
- Observed narrowing emanates from increase in Treasury repo rate and not decrease in repo rates on lower quality collateral
- Results supportive of additional hypotheses and robust
- Strong results may arise from powerful test of supply effects with minimal difficulties arising from endogeneity issues