

# Discussion of "Scarcity and Spotlight Effects on Liquidity and Yield: Quantitative Easing in Japan"

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The views expressed here are the authors' and do not necessarily reflect those of the ECB or the Eurosystem.

# What the authors do

Examine the impact of Bank of Japan (BoJ) purchases of Japan government (JG) bonds on

- ▶ Market liquidity:
  - ▶ **Spotlight effect:** bonds targeted become more liquid in short-run
  - ▶ **Scarcity effect:** bonds become less liquid in long-run because BoJ reduces the "free-float" of JG bonds
- ▶ Yields: overall yields (prices) decrease (increase) although JG bonds become more illiquid

# Comments

- ▶ Interesting and intuitive results
- ▶ Main comments on the paper:
  1. Theory
  2. Data
  3. Measuring market liquidity
  4. Empirical strategy

# 1. Theory (I)

**Comment I:** Authors **implicitly** have in mind a search-based framework as in Ferdinandusse&al. (2018) (FFR)... but I would make it more explicit

$$\text{Price} = \text{Fund. value} + \text{Liquidity premium}(\alpha_{cb}, \text{etc..})$$

- ▶ Fundamental value depends on bond characteristics (coupon, maturity, discount etc.)
- ▶ Liquidity premium depends on the degree of frictions in the cash market and central bank (CB) purchases  $\alpha_{cb}$ :
  - ▶ Increase demand of bonds
  - ▶ Crowd out sellers due to hold-to-maturity CB strategy

# 1. Theory (II)

- ▶ **Hypothesis I:** spotlight effect stronger in the short-run but scarcity effect stronger in the long-run due to the accumulation of CB purchases
- ▶ **Comment II:** FFR model is infinite-horizon with no time
  - ▶ No transition dynamics: no  $\alpha_{cb}(t)$
  - ▶ Predictions come from comparative statics
- ▶ Additional reference is Vayanos and Weill (2008, JF) (VW) where cash and repo markets are integrated
  - ▶ Corradin&Maddaloni (2019) extend VW with central bank

## 2. Data

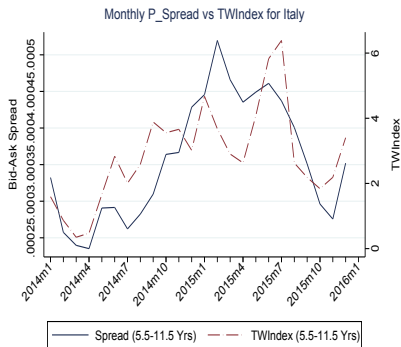
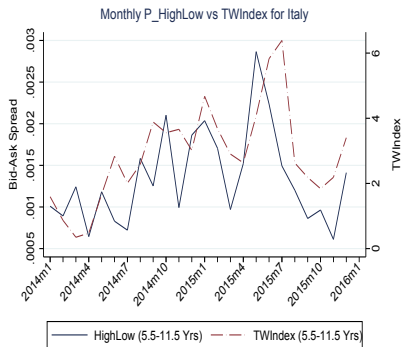
- ▶ **Comment I:** Can you include information whether the bond is special or not in the repo market?
- ▶ Important for the scarcity channel ∴ from your intro
  - ▶ **Spotlight:** *"BoJ increases competition among dealers .... tightening of bid-ask spreads"*
  - ▶ **Scarcity:** *"... increases in bid-ask spread because market makers face a larger risk of holding short position due to the reduction in the float of bonds that become increasingly scarce and more difficult to borrow in the repo market"*

### 3. Measuring market liquidity (I)

- ▶ Due to lack of data authors rely on daily bid-ask spreads computed on Bloomberg quotes
- ▶ **Comment I:** Use additional measure of market liquidity based on quotes, for example high-low measure see Corwin and Schultz (2012, JF) and Abdi and Rinaldo (2017,RFS)
  - ▶ **High-low spread estimator:** difference between high and low prices contains information on price variance and spread

### 3. Measuring market liquidity (II)

- ▶ **Comment II:** High-low co-moves more with market liquidity indicators based on euro area sovereigns at monthly frequency ... but bid-ask spreads are fine too

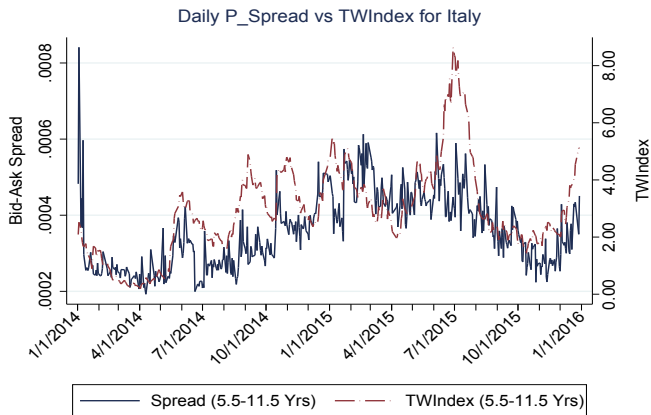


Tradeweb index computed at country-maturity bucket level and based on the distance between transacted and quoted prices



### 3. Measuring market liquidity (III)

- ▶ **Comment III:** But correlation much lower at daily frequency (around 0.4)



- ▶ **Comment IV:** Bid-ask spreads might be *super compressed* at zero lower bound

## 4. Empirical strategy (I)

- ▶ The main specification is

$$y_{n,t} = \alpha + \underbrace{\beta_1 \times \text{Target}_{n,t} + \beta_2 \times \text{Purchase}_{n,t}}_{\text{Spotlight}} + \underbrace{\gamma \times \text{Holding ratio}_{n,t}}_{\text{Scarcity}} + \text{Other controls}$$

- ▶  $y_{n,t}$  spread or yield of bond  $n$  at day  $t$
- ▶  $\text{Target}_{n,t}$  dummy equal to 1 if the bond is in BoJ list
- ▶  $\text{Purchase}_{n,t}$  amount purchased (over outstanding amount) of bond  $n$  at day  $t$  (or previous auction)
- ▶  $\text{Holding ratio}_{n,t}$  relative holding of bond  $n$  at day  $t$  as a % of outstanding bonds

## 4. Empirical strategy (II)

### ▶ **Comment I:**

- ▶ Work with  $\Delta y$  for yields but bid-ask spreads might be persistent too .. modeling liquidity where liquidity of the previous day is the most important factor
- ▶ Is Holding ratio  $_{n,t}$  persistent? If yes it can bias  $\gamma$
- ▶ BoJ does not run auctions every day  $t$ 
  - ▶ What happens to  $\text{Purchase}_{n,t}$  given that you run daily regressions?
  - ▶ Or you run the regressions only on days  $t$  when auctions are run?
  - ▶ Is the panel unbalanced?

## 4. Empirical strategy (III)

- ▶ **Comment II:** You could try alternative strategies
- ▶ **Left-hand side variable**
  - ▶ Pair bonds:

$$\text{Bid-ask spread}_{n,t} - \text{Bid-ask spread}_{m,t}$$

where bond  $n$  is purchased but  $m$  not at day  $t$

- ▶ Relative liquidity measure: bond-specific market liquidity measure vs group-specific market liquidity measure (maturity bucket)
- ▶ **Dynamic effects**
  - ▶ Use change of bid-ask spreads at different horizons
  - ▶ Local linear projections (Jorda, AER 2005): see whether BoJ purchases have persistent effect on bid-ask spreads