Abstract

1. This is the first study on Bank of Japan’s Yield Curve Control (YCC).
2. BOJ’s YCC is similar to the Fed’s bond-price support regime during WWII.
3. A large fixed-rate purchase operation decreased the JGB yield but not the LIBOR swap rate in the short run.
4. Both trend and cycle became stable and less volatile during YCC.
5. JGB yields have become stationary across the entire yield curve.

What is Yield Curve Control?

1. The BOJ started Quantitative and Qualitative Easing (QQE) in April 2013 to achieve a 2% inflation rate.
2. YCC started in September 2016 with a dual bond-purchase program: fixed-amount auctions and fixed-rate purchases.
3. In fixed-rated operations, BOJ purchases an unlimited amount of JGBs at a target price.

Relation to the Fed’s Bond-Price Support Regime

1. In 1942, the Fed and the Treasury Department agreed to peg short- and long-term bond yields to certain rates (e.g., Friedman and Schwartz, 1963; Hutchinson and Toma, 1991).
2. BOJ’s YCC is similar to this program by setting a ceiling for long-term yields (Amamiya, 2017).

Research Questions

Can a central bank control the yield curve in the modern financial market?

Hypotheses:
1. JGB rates follow stationary process for all maturities.
2. The yield volatility decreases.
3. The yield spread will not change between swap rates.

The Largest Fixed-Rate Purchase Operation

1. The largest fixed-rate operation (>517) took place on July 30, 2018.
2. BOJ does not announce the timing of a fixed-rate purchase operation, unlike for regular fixed-amount auctions.
3. We analyze the effect of the operation on intra-day yields by difference-in-difference.
   • Treatment: 10-year JGBs
   • Control: 10-year interest LIBOR swap
4. The swap-JGB spread increased and remained large for 30 days.

Stochastic Properties of Daily Yields

1. We decompose 10-year JGB yields into a stochastic trend and cycles by the HP and Hamilton filters. During YCC,
   • The stochastic trend is stabilized.
   • The cycle volatility decreased (0.068%–0.031%).
2. We run Augmented Dickey-Fuller and Phillips-Perron unit-root tests.
   • All 2-, 5-, 7-, 10-year yields have become stationary.
3. The result suggests that BOJ policy is considered credible.

Additional Results

1. Correlations between JGB yields and US/German yields decreased (US 0.80 → 0.56, German 0.9 → 0.61)
2. BOJ flexibly uses fixed-amount auctions in response to yield increases.

References