ZLB(?) and Beyond: Real and Financial (Side)Effects of Low and Negative Interest Rates in the Euro Area

Andrejs Zlobins
Bank of Latvia

The views expressed in this presentation are those of the author and do not necessarily reflect the views of the Bank of Latvia
Motivation

- The ECB first cut the Deposit Facility Rate to zero in July 2012 and then moved it into negative territory in June 2014 to combat the disinflationary pressures in the euro area.

- The conventional wisdom suggests that standard monetary policy measures become ineffective once they reach the ZLB (Keynes (1936); Krugman (1998); Eggertsson and Woodford (2006); Eggertsson et al. (2018)) as both intertemporal substitution (because deposit rates are sticky at zero) and bank lending (due to a significant decline in pass-through of policy rates to lending rates) channels break down.

- In addition, Brunnermeier and Koby (2018) theorize that negative policy rates might be contractionary due to erosion in bank profitability via narrower net interest margins which subsequently cause a contraction in lending.

- However, several recent papers question the empirical relevance of the ZLB:
  - Altavilla et al. (2019b) show that healthy banks are able to pass negative rates on to corporate deposits while firms rebalance liquid assets towards tangible and intangible assets, thus increasing investment.
  - They also point out that bank lending channel remains active due to lower provisions for non-performing loans which in turn increases the supply of credit.
  - Rostagno et al. (2019) demonstrate that negative policy rates lower interest rate expectations as central bank thereby removes the non-negativity restriction and signals that future policy rate cuts are possible.
  - Altavilla et al. (2019a) argue that policy rate cuts in negative territory have more persistent impact on the term structure compared to policy rate setting in positive environment.

- Our study expands the literature on low and negative policy rates in the euro area as follows:
  - We assess their macroeconomic impact using a set of non-linear time series frameworks.
  - We analyze their effects on a wide range of macroeconomic and financial variables to detect any changes in monetary policy transmission mechanism once the policy rate enters negative territory.
  - Finally, we devote significant attention to the analysis of potential side effects which are often associated with a prolonged period of low and negative interest rates.
Empirical strategy

- We employ **two different non-linear macroeconometric models**
- **First**, we consider a **time-varying parameter structural vector autoregression with stochastic volatility** (TVP-SVAR-SV) and perform **identification via sign restrictions**
  - We use an agnostic set of restrictions to identify the MP shock, leaving the reaction of output and prices unrestricted
  - Aggregate demand and supply shocks are also singled out so that the MP shock is isolated from business cycle disturbances
- **Second**, we make use of **non-linear local projections** (NL-LP) along the lines of Jordà (2005) and Ramey and Zubairy (2018) and disentangle the MP shock using the **high frequency comovement** of interest rates, stock prices and exchange rate around the policy announcements
  - The high frequency surprises are taken from the Euro Area Monetary policy Event-Study Database (EA-MPD) of Altavilla et al. (2019a)
  - To control for the information effect, we employ similar approach to Jarociński and Karadi (2020) and isolate it from pure monetary policy shock via sign restrictions
  - To pin down the changes in the transmission mechanism once the policy rates reach the ZLB, we compute impulse responses across two states – pre-ZLB (Q1 2000 – Q2 2012) and post-ZLB (Q3 2012 – Q2 2019)
- Both models include the same set of variables – Real GDP, HICP, the EONIA, Euro Stoxx 50 and EUR/USD – and are estimated over the period from 2000 Q1 to 2019 Q2
- The use of alternative frameworks for deriving non-linear impulse response functions and identification strategies help to ensure that our results regarding the efficacy of negative interest rates and the relevance of the ZLB are neither model- nor identification strategy- specific
Aggregate demand has remained responsive to policy rate cuts below the ZLB but price pressures have tailed off.
Sub-zero policy rates have lowered interest rate expectations and compressed the yield curve

**TVP-SVAR-SV**

- 3-month EURIBOR 1-year forward rate
- 3-month EURIBOR 2-year forward rate
- 2-year bond yields
- 5-year bond yields

**PRE-ZLB (Q1 2000 – Q2 2012)**

- 3-month EURIBOR 1-year forward rate
- 3-month EURIBOR 2-year forward rate
- 2-year bond yields
- 5-year bond yields

**POST-ZLB (Q3 2012 – Q2 2019)**

- 3-month EURIBOR 1-year forward rate
- 3-month EURIBOR 2-year forward rate
- 2-year bond yields
- 5-year bond yields

**NL-LP**

Note: Figures show impulse response functions (cumulative in case of the TVP-SVAR-SV) to the MP shock which has been normalized to a 10 bps drop in the EONIA.
Bank lending channel has remained active below the ZLB despite the breakdown in pass-through of policy rates to lending rates

Note: Figures show impulse response functions (cumulative in case of the TVP-SVAR-SV) to the MP shock which has been normalized to a 10 bps drop in the EONIA
Limited evidence to suggest that negative policy rates have adversely affected either bank profitability, property prices or bank deposits.

Note: Figures show impulse response functions (cumulative in case of the TVP-SVAR-SV) to the MP shock which has been normalized to a 10 bps drop in the EONIA.
Conclusions

- Our findings suggest that the policy rate has continued to support the aggregate demand in the euro area even in sub-zero territory, expanding the growing literature which questions the empirical relevance of the ZLB.

- However, the reaction of inflation and its expectations has significantly deteriorated in the post-ZLB period.

- We also show that policy rate cuts below the zero have more persistent impact on the term structure and interest rate expectations.

- We find limited evidence to support the view that negative interest rates cause a contraction in lending despite the disconnect of lending rates from the policy rate.

- Regarding the side effects which are often associated with a prolonged period of low and negative interest rates, we find:
  - limited evidence that they have an adverse effect on bank profitability
  - no evidence to suggest that they generate price bubbles in the real estate market
  - they do not lead agents to hoard cash