

Discussion of
Monetary Policy Implementation in a
Negative Rate Environment
by Michael Boutros and Jonathan Witmer

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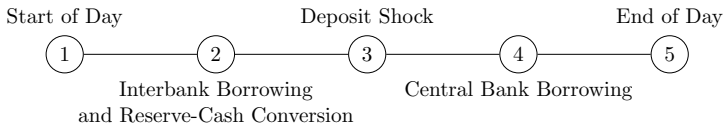
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Main Insights

- ▶ Deposit rate is not constraint by an effective lower bound
- ▶ Money market rate has an effective lower bound at the costs of holding cash
- ▶ But this lower bound can be avoided by increasing (shadow) costs of cash conversions
- ▶ This can be achieved by dynamically adjusted exemption thresholds for reserve remunerations

Summary 1: Set-up

- ▶ Banks hold heterogenous amounts of bonds, cash, and reserves
- ▶ Banks refinance to different extent by equity and deposits
- ▶ Timeline:

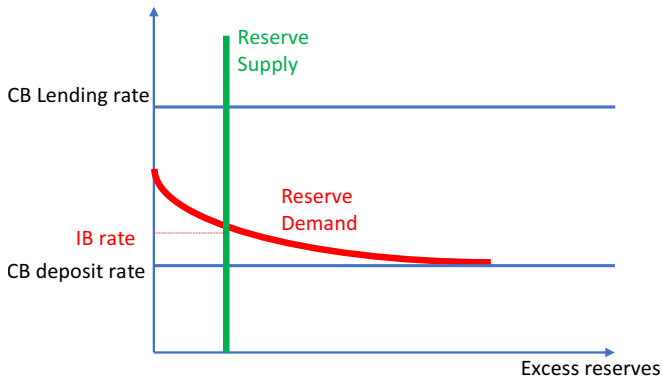


- ▶ Deposit shock materialises after IB trading and cash conversion
- ▶ If deposit shock results in positive reserve balance bank deposits with CB
- ▶ If deposit shock results in negative reserve balance bank borrows from CB

Summary 2: Set-up

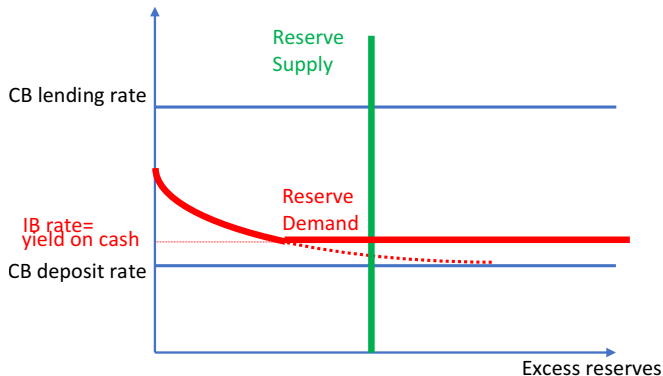
- ▶ Continuum of banks with iid deposit shock
- ▶ This means a) no aggregate liquidity shock and b) all banks have same voluntary reserve holdings prior to shock
- ▶ Banks choose voluntary reserve holdings (prior to deposit shock) such that marginal expected costs (benefits) from recourse to CB facilities equal to the interbank rate
- ▶ Aggregate demand for (voluntary) reserve holdings increases as the interbank rate declines

Summary 3: Results w/o cash conversion



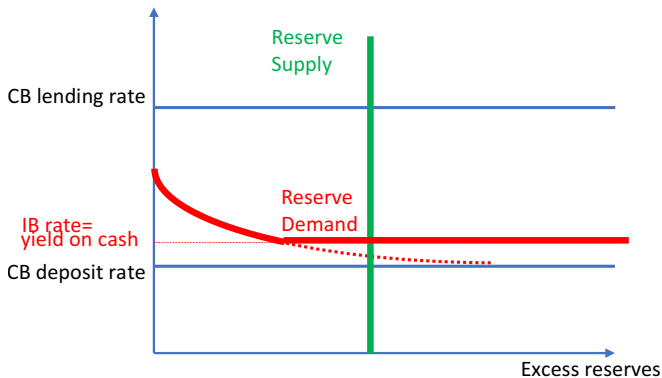
- ▶ As average excess reserves increase, banks have lower expected benefits from holding marginal unit of reserves
- ⇒ Arbitrage free interbank rate declines
- ⇒ Arbitrage free interbank rate equals expected costs/benefits from recourse to CB facilities

Summary 4: Results with cash conversion



- ▶ Banks can also convert involuntary reserves into cash
- ▶ Yield on cash $>$ CB deposit rate
- ▶ Rather than accepting a very low IB rate banks with involuntary reserve holdings can convert into cash

Summary 5: Results with cash conversion



- ▶ For large excess reserves 'yield on cash' is the effective lower bound for the target rate (IB rate)
- ▶ The deposit rate can be significantly lower

Summary 6: Tiered reserve remuneration

- ▶ Reserves up to a threshold remunerated at target rate (IB rate)
 - ▶ Only reserve holdings exceeding the threshold pay deposit rate
- ⇒ This only changes the level of the reserve demand function
- ▶ BUT: If bank specific threshold is reduced by bank's cash conversions further shadow costs of cash conversion introduced
 - ▶ Shadow costs offset banks benefits from cash conversion over IB lending at lower IB rates
 - ▶ Such dynamically adjusted thresholds eliminate the effective lower bounds of the target rate (IB rate)
- ⇒ CB has full control over target rate

Comment 1:

Transaction costs of cash conversion

- ▶ In the model yield on cash is the cost of storing cash
 - ▶ But cash conversion also creates transaction costs:
Both for converting reserves in cash and cash in reserves
 - ▶ Cash holdings in the morning cannot be costlessly converted into voluntary reserve holdings
- ⇒ Taking this into account banks face richer optimisation problem

Comment 2:

Role of balance sheet restrictions

- ▶ Each bank can meet any voluntary reserve holding by borrowing unlimitedly in the IB market
- ▶ There is no equity or leverage ratio
- ▶ Incorporating this might allow to make predictions about which banks are more likely to convert to cash
- ▶ Together with transaction cost on conversion balance sheet restriction foster incentives to hold voluntary reserves

Comment 3:

Dynamic adjustment of exemption threshold

- ▶ High cash conversion today increase tomorrow's cash holdings and reduce tomorrow's involuntary reserve holdings
- ▶ Taking this into account suggest that a bank's cash HOLDINGS (not its conversion) must be penalised (i.e. affect exemption threshold)
- ▶ But how to keep track of each bank's cash holdings?

Conclusion

- ▶ Very interesting paper
- ▶ Great to read
- ▶ Handy extension of the Poole model
- ▶ Lends itself well to further extensions