



Unconventional Credit Policy in an Economy under Zero Lower Bound

by J Pozo and Y Rojas

Discussion by Fiorella De Fiore
BIS and CEPR

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The questions

- Are unconventional (govt guaranteed) credit policies effective tools to sustain real activity in periods of low productivity?
- Do they reduce the likelihood of episodes at the ZLB?
- Are they more or less effective at the ZLB?
- Are unconventional credit policies more effective than conventional ones?

The model

- 2 periods
- Agents: households, entrepreneurs, intermediate and final good producing firms, banks, central bank (CB), government
- Production: DRS, capital only
- Nominal frictions: sticky prices
- Financial frictions
 - Moral hazard between banks and depositors
 - Asymmetric information and costly state verification (CSV)

The model: financial frictions

➤ **Moral hazard between banks and depositors** (Gertler and Kiyotaki, 2011)

➤ Incentive compatibility constraint: $V_1 \geq \lambda R_2^l B_2$

➤ Credit spread: $R_2^l - R_2 > 0$

➤ **Asymmetric information and CSV** (Bernanke, Gertler and Gilchrist, 1999)

➤ Optimal contract solves CSV problem: default threshold $\bar{\omega}_2$, non-default loan rate Z_2 , such that

$$[1 - F(\bar{\omega}_2)] Z_2 B_2 + (1 - \mu) \int_{-\infty}^{\bar{\omega}_2} \omega R_2^k K_2 dF(\omega) = R_2 B_2$$

➤ Credit spread: $R_2^k - R_2 > 0$

The model: interacting financial frictions

- Banks constrained by their net worth

- Banks must receive a lending rate sufficiently high that banks do not divert deposits

- The optimal CSV contract has to satisfy a different participation constraint for the bank

$$[1 - F(\bar{\omega}_2)] Z_2 B_2 + (1 - \mu) \int_{-\infty}^{\bar{\omega}_2} \omega R_2^k K_2 dF(\omega) = R_2^l B_2$$

- Credit spread: $R_2^k - R_2^l > 0$

The model: unconventional credit policy (UCP)

- CB liquidity provision to banks that extend govt guaranteed loans to entrepreneurs
 - UCP accounts for a share $\psi_{CB,t}$ of total external funding
- UCP reduces bank equity per unit of credit (bank + CB)
 - Higher credit supply and investment
- CB loans are not subject to bankruptcy costs due to govt guarantees
 - Zero credit spread – CB loans cheaper than bank loans

Main findings

- UCP is effective in supporting credit and investment
 - UCP reduces moral hazard and default probability: lower spreads, higher credit demand
 - Supply of bank loans complemented by CB loans: higher credit supply
- UCP reduces the likelihood of reaching the ZLB
 - Govt guarantees require taxing HH: lower deposit supply, higher safe interest rate
- UCP is less effective at the ZLB
 - At the ZLB, inflation is above target and UCP helps reduce inflation, shifting down credit demand
- UCP equally effective than conventional credit policy
 - A credit policy where the CB lends at the market lending rate R_2^l achieves a similar allocation
 - Larger role for expanding credit, rather than reducing the cost of loans

Comment 1: Productivity decline and the ZLB

- In NK model with financial frictions and sticky prices, temporary productivity fall does not lead to ZLB
 - Inflation increases, as does in the model here

$$\frac{P_{i,2}}{P_2} = \left(\frac{1}{\alpha a^{1/\alpha}} R_2^k (Y_2)^{\frac{1-\alpha}{\alpha}} \right)^{\frac{\alpha}{\alpha + \theta(1-\alpha)}}$$

- Natural rate increases because consumption falls on impact and then grows
- Interest rate rises under the assumed Taylor rule

$$i_1 = \max(i_{min}, R_2^* (1 + \pi_2)^{\phi_\pi} - 1)$$

- Natural rate would decline under a permanent fall in productivity
 - But here only 2-periods: temporary or permanent?

Comment 2: UCP lowers the likelihood of reaching the ZLB

- Lower likelihood of ZLB arises from (lump-sum) taxes used to cover bankruptcy costs
 - Higher taxes induce HHs to reduce deposits to smooth consumption
 - Deposit (risk-free) rate increases
- Offsetting forces
 - Expansionary impact of UCP tends to increase investment and lowers the real rate over time
 - During Covid crisis: limited defaults and no need to finance bankruptcy costs through taxation
- Likelihood of hitting ZLB depends on long-term real rate
 - Difficult to disentangle short-term adjustments from long-term impact in 2 periods model
 - Need a dynamic model to capture which force prevails on the real rate over longer-term

Comment 3: Limited effectiveness of UCP at the ZLB

- At ZLB, when CB cannot reach inflation target (zero)
 - Inflation moves above zero because of the high real rate (**below?**)
 - UCP pushes inflation down via impact on deposit rate (**up by stimulating credit and consumption?**)
 - Lower inflation reduces the demand for capital → less (**more?**) expansionary impact at ZLB

Comment 4: Optimal monetary policy

- Monetary policy follows an “optimal” natural interest rate rule derived w/o financial frictions
 - It achieves $\pi = 0$ away from ZLB, deviates from target at ZLB
- Financial frictions create a **trade-off between inflation and output** (De Fiore-Tristani, 2012)
 - Under optimal MP, deviations from $\pi = 0$ are small under TFP shocks, large under financial shocks
- UCP could be more effective because by reducing the impact of frictions, they minimize π/y trade-off

Conclusions

- Interesting paper on a relevant topic
- Some surprising results on the effectiveness of govt guaranteed CB credit policy
- Clarify underlying assumptions and robustness to infinite horizon model