Active and Passive (Un)conventional Monetary and Fiscal Policies for Debt Stability

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EPFL

July 11, 2022
Motivation

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- Explicit or implicit transfers to households

- Lead to a big increase of the US debt to GDP and posed questions on its stability
Research Question

• How is this new debt going to be repaid?
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- The benchmark case: by fiscal adjustments

Active conventional monetary policy and passive fiscal policy

Fiscal policy promotes debt stability and monetary policy sets the nominal rate according to its monetary rule → austerity

By inflating out the new debt (Bianchi, Faccini & Melosi (2021))

Conventional monetary policy becomes passive, it accommodates the inflation needed for debt stabilization

It achieves this by increasing inflation above its (active) target

By Quantitative Easing and rebating the profits to the Treasury

Passive QE is responsible for debt stability
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- It receives the return $R_{b,t}$ and pays $R_{m,t}$ to the reserves.
- When $R_{b,t} > R_{m,t}$, the CB does make a profit.
- When profits are remitted to the Treasury, they can make the government’s budget constraint to hold.
Summary of the Paper

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- QE can provide debt stability even without fiscal adjustments
- Passive conventional monetary policy provides the best responses after a transfer shock; although hard to justify institutionally
Profits from Bonds Purchases
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![Graph showing profits from bonds purchases from 2011 to 2021. The red line represents the share of QE revenue in remittances, and the black line represents the share of QE revenue in debt interest payments. The graph shows a general decline in both shares from 2011 to 2017, followed by a sharp increase in 2019 and 2020.]}
The DSGE Model

Two-Agent NK model with banks = NK +

• Optimizers and a fraction of hand to mouth households without access to financial markets
• Banks extend loans to non-financial corporations, hold government bonds and receive reserves
• They face a moral hazard problem similarly to Gertler and Karadi (2013)
• Eliminates perfect substitutability of assets and breaks QE’s neutrality
• Bond purchases by an unconstrained central bank by issuing and giving reserves to the banks
• Central bank profits from QE go as remittances to the Treasury
• Fiscal policy: Countercyclical fiscal rules for gov. consumption, transfers and distortionary taxes
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- Two types of agents $s \in \{S, N\}$ ($S =$ savers, $N =$ hand to mouth)
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- Hand to Mouth (\( N \))

\[
Pt(1 + \tau_t^C)C_t^N = (1 - \tau_L^t)W_tL_t^N + P_tZ_t^N
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  \]
- Savers ($S$)
  \[
P_t(1 + \tau_t^C)C_t^S + R_t^{-1}D_t = D_{t-1} + (1 - \tau_t^L)W_tL_t^S + P_tZ_t^S + \Pi_t
  \]
Banks

- They provide loans to firms $S_t$ at price $Q_t$, hold government bonds $B^b_t$ and reserves $M_t$
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- Their balance sheet is:

$$Q_t S_t + P_t^B B_t^b + M_t = N_t + D_t$$
Banks: Constraint

- Bankers face a moral hazard problem similarly to Gertler & Karadi (2010)

\[ V_{j,t} \geq \theta \left[ Q_t S_t + \Delta P_B t B_t + \omega_M t \right] \]
Banks: Constraint

- Bankers face a moral hazard problem similarly to Gertler & Karadi (2010).
- At time $t$, the banker can choose to divert funds from her assets and transfer them back to her household members.

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- Cost: depositors can force the intermediary into bankruptcy and get the remaining assets
- Depositors supply funds as long as

$$V_{j,t} \geq \theta [Q_t S_t + \Delta P^B_t B^b_t + \omega M_t]$$

- Easier for the bank to divert loans rather than bonds. Cannot divert reserves $\omega = 0$
Quantitative Easing

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- Passive QE rule

$$\hat{b}_t^{CB} = \rho_{b^{CB}} \hat{b}_{t-1}^{CB} + (1 - \rho_{b^{CB}}) \gamma_{QE} \hat{b}_{t-1}$$
Conventional Monetary Policy

- **Active MP**: Central bank sets the nominal interest rate following a Taylor rule responding to output and inflation deviations

\[
\hat{R}_{n,t} = \rho r_{\hat{R}_{n,t}} - 1 + (1 - \rho r)\left[\phi \pi_t - \hat{\pi}_{tF} + \phi y \hat{y}_t\right] + \epsilon_{MPS}
\]

\(\hat{\pi}_{tF}\): inflation needed to stabilize the unfunded share of debt
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- \(\hat{\pi}_t^F\): inflation needed to stabilize the unfunded share of debt.
Fiscal Policy

- The consolidated government budget constraint reads

\[
P_t^B B_t + \tau_t^L W_t L_t + \tau_t^C P_t C_t + (R_{b,t} - R_{m,t}) q_{t-1} B_{t-1}^{CB} + QE\text{ revenues} = (1 + \rho P_t^B) B_{t-1} + P_t G_t + P_t Z_t
\]

with fiscal rules:

\[
\begin{align*}
\hat{g}_t &= \rho G \hat{g}_{t-1} - (1 - \rho G) \gamma_G \hat{b}_t^{M} \\
\hat{z}_t &= \rho Z \hat{z}_{t-1} - (1 - \rho Z) \gamma_Z \hat{b}_t^{M} + \zeta_{Z,t} \\
\hat{\tau}_t^J &= \rho J \hat{\tau}_{t-1}^J + (1 - \rho J) \gamma_J \hat{b}_t^{M}.
\end{align*}
\]

where \( J \in \{c, l\} \) and \( \hat{b}_{t-1}^{M} \) is the debt-to-GDP ratio in deviations from the steady state.
A Transfer Shock

• We consider two cases:

• **Active Conventional MP:**

• **Passive FP:** Fiscal policy adjustments stabilize the debt

• **Passive QE:** QE stabilizes the debt

• **Passive Conventional MP:** Conventional monetary policy accommodates the inflation needed for debt stabilization (no response)

Model parametrization follows Bianchi, Faccini & Melosi (2021)
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Transfer Shock and Passive QE
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- **Bank Bet Worth**
- **Bank Bonds**
- **Bank Loans**
- **Inflation**
- **Real Interest Rate**
- **Debt-GDP Ratio**

- **Fiscal Stabilisers**
- **QE Stabilizer**

Passive Conv. Monetary Policy

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Graphs showing the deviations from steady state (ss) for various economic indicators under different monetary policies (Funded: Fiscal stab, Passive MP, Funded: QE stab).
Passive Conv. Monetary Policy

![Graphs of various economic indicators showing deviations from steady state (ss) over time. The indicators include:
- Output
- Savers Consumption
- HtM Consumption
- Investment
- Labour taxes
- Consumption taxes
- Government Spending
- Ann. Asset Purchases / GDP
- QE Fiscal Revenues
- HtM Labour Hours
- Savers Labour
- Transfers

The graphs illustrate the impact of different monetary policies, including passive monetary policy (Passive MP) and funded quantitative easing (Funded: QE stab), compared to fiscal stabilization (Funded: Fiscal stab). The y-axes represent the percentage deviations from steady state, while the x-axes show time over 40 periods.](image-url)
Conclusion

- We study the debt stability properties of QE
- QE creates profits that can be a substantial fiscal revenue
- In the data, they account for up to 1/3 of total debt interest payments
- We build a DSGE model with passive QE and we show that QE can be a debt stabilising mechanism even when fiscal policy is absent
- Passive conventional monetary policy provides the best responses after a transfer shock; although hard to justify institutionally
Coupon - Reserves Spread

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\[\gamma_{\text{QE}}\]

\[\gamma^G\]

\[\gamma^l\]