

The Fiscal Cost of Quantitative Easing

Adrien d'Avernas, Antoine Hubert de Fraisse, Liming Ning, and Quentin Vandeweyer

Discussion by Paolo Varraso
Tor Vergata University of Rome

20th June 2025

What is the paper about?

- QE \Rightarrow purchase of LT assets financed by interest-bearing ST reserves
 - ▶ QE exposes central bank to **interest-rate risk**
 - ▶ $\uparrow i \Rightarrow$ refinance reserves at higher rate \Rightarrow operational losses, ultimately borne by taxpayers

What is the paper about?

- QE \Rightarrow purchase of LT assets financed by interest-bearing ST reserves
 - ▶ QE exposes central bank to **interest-rate risk**
 - ▶ $\uparrow i \Rightarrow$ refinance reserves at higher rate \Rightarrow operational losses, ultimately borne by taxpayers
- **Key question:** How can we measure the fiscal cost of QE?

What is the paper about?

- QE \Rightarrow purchase of LT assets financed by interest-bearing ST reserves
 - ▶ QE exposes central bank to **interest-rate risk**
 - ▶ $\uparrow i \Rightarrow$ refinance reserves at higher rate \Rightarrow operational losses, ultimately borne by taxpayers
- **Key question:** How can we measure the fiscal cost of QE?
- **Approach:**
 - ▶ **Consolidated government** perspective \Rightarrow QE = \downarrow debt maturity
 - ▶ Theoretical framework to think about **optimal QE size**
 - ▶ trade-off between **tax smoothing** and **aggregate demand management**
 - ▶ Quantification of deadweight losses from distortionary taxation

Main Results

- When ZLB is not binding:
 - ▶ Government can perfectly smooth taxes, $\tau_0 = \tau_1(s)$
 - ▶ It fully eliminates refinancing risk, $B_1^s(s) = 0$

Main Results

- When ZLB is not binding:
 - ▶ Government can perfectly smooth taxes, $\tau_0 = \tau_1(s)$
 - ▶ It fully eliminates refinancing risk, $B_1^s(s) = 0$
- **New twist** - when ZLB is binding:
 - ▶ additional benefit of **shortening debt maturity**
 - ▶ \downarrow debt maturity $\Rightarrow \downarrow$ precautionary savings $\Rightarrow \uparrow$ aggregate demand
 - ▶ but this comes at a cost: \downarrow debt maturity $\Rightarrow \uparrow$ rollover risk $\Rightarrow \uparrow$ tax volatility

Main Results

- When ZLB is not binding:
 - ▶ Government can perfectly smooth taxes, $\tau_0 = \tau_1(s)$
 - ▶ It fully eliminates refinancing risk, $B_1^s(s) = 0$
- **New twist** - when ZLB is binding:
 - ▶ additional benefit of **shortening debt maturity**
 - ▶ \downarrow debt maturity $\Rightarrow \downarrow$ precautionary savings $\Rightarrow \uparrow$ aggregate demand
 - ▶ but this comes at a cost: \downarrow debt maturity $\Rightarrow \uparrow$ rollover risk $\Rightarrow \uparrow$ tax volatility
- Optimal size of QE:

$$\underbrace{\uparrow \text{ rollover risk }}_{\text{marginal cost}} = \underbrace{\uparrow \text{ output }}_{\text{marginal benefit}}$$

Main Results

- When ZLB is not binding:
 - ▶ Government can perfectly smooth taxes, $\tau_0 = \tau_1(s)$
 - ▶ It fully eliminates refinancing risk, $B_1^s(s) = 0$
- **New twist** - when ZLB is binding:
 - ▶ additional benefit of **shortening debt maturity**
 - ▶ \downarrow debt maturity $\Rightarrow \downarrow$ precautionary savings $\Rightarrow \uparrow$ aggregate demand
 - ▶ but this comes at a cost: \downarrow debt maturity $\Rightarrow \uparrow$ rollover risk $\Rightarrow \uparrow$ tax volatility

- Optimal size of QE:

$$\underbrace{\uparrow \text{ rollover risk }}_{\text{marginal cost}} = \underbrace{\uparrow \text{ output }}_{\text{marginal benefit}}$$

- **Key result:** deadweight losses < output gains for all US QE

Other Sources of Fiscal Risk

- In the model, fiscal risk arises solely from interest rate risk.
- However, other important sources of fiscal risk exist—most notably, shocks to **fiscal expenditures** or **tax revenues**.

Other Sources of Fiscal Risk

- In the model, fiscal risk arises solely from interest rate risk.
- However, other important sources of fiscal risk exist—most notably, shocks to **fiscal expenditures** or **tax revenues**.
- Literature has studied optimal debt maturity when the government faces **uncertainty about future fiscal deficits**.

Other Sources of Fiscal Risk

- In the model, fiscal risk arises solely from interest rate risk.
- However, other important sources of fiscal risk exist—most notably, shocks to **fiscal expenditures** or **tax revenues**.
- Literature has studied optimal debt maturity when the government faces **uncertainty about future fiscal deficits**.
- If larger deficits are associated with lower long bond prices, then issuing long-term debt enhances tax smoothing. (Angeletos 2002, Faraglia et al., 2018)
 - ▶ adverse fiscal shock \Rightarrow \downarrow market value of long-term debt \Rightarrow \uparrow tax smoothing

marginal cost of QE = \uparrow rollover risk + \uparrow fiscal risk

Active Sales vs Passive Runoffs

- **Measurement assumption:** Fed conducts **one-time asset sales** at the end of QE.
 - ▶ Conservative assumption \Rightarrow may overstate fiscal costs.

Active Sales vs Passive Runoffs

- **Measurement assumption:** Fed conducts **one-time asset sales** at the end of QE.
 - ▶ Conservative assumption \Rightarrow may overstate fiscal costs.
- Historically the Fed has preferred a **passive** unwinding strategy.
 - ▶ Securities are allowed to mature without reinvestment.

Active Sales vs Passive Runoffs

- **Measurement assumption:** Fed conducts **one-time asset sales** at the end of QE.
 - ▶ Conservative assumption \Rightarrow may overstate fiscal costs.
- Historically the Fed has preferred a **passive** unwinding strategy.
 - ▶ Securities are allowed to mature without reinvestment.
- Does the assumed *timing* and *pace* of the exit affect the measured cost of QE?
 - ▶ Faster exits \Rightarrow \uparrow realized losses if long-term rates rise abruptly.
 - ▶ Slower exits \Rightarrow delay normalization and persistent tax distortions.
- Would be good to extend the measurement exercise to allow for passive runoffs.

Why Long-Term Bonds Have Positive Beta?

- Interest-rate risk in the model arises from shocks to productivity
- For QE to have a positive output effect, LT bonds must offer a risk premium — that is, they must be a relatively poor hedge against underlying productivity shock

Why Long-Term Bonds Have Positive Beta?

- Interest-rate risk in the model arises from shocks to productivity
- For QE to have a positive output effect, LT bonds must offer a risk premium — that is, they must be a relatively poor hedge against underlying productivity shock
- It is not immediately clear why LT bonds have a positive beta in the model
 - ▶ Appendix provides a formal derivation to support this assumption
 - ▶ It may be helpful to provide some economic intuition
- Perhaps using a **discount factor shock** could generate a term premium more naturally.
(Greenwood et al., 2015)

One Small Comment

- **Refinancing risk** may be a better label.
- Rollover risk in the sovereign borrowing literature generally associated to
 - ▶ self-fulfilling debt crises, or
 - ▶ failure to roll over maturing debt in treasury auctions.
- Avoiding self-fulfilling rollover crises may call for issuing shorter-term debt.
(Bocola and Dovis, 2019)

Conclusion

- Very nice and highly relevant paper!
- Careful and convincing assessment of the deadweight losses arising from refinancing risk
- Incorporating additional sources of fiscal risk could be important for a more comprehensive assessment of QE costs.
- It may be worthwhile to further explore the implications of different exit strategies.