Discussion of
"Optimal QE and QT"

by **Paolo Gelain**
& joint with Junior Maih, Eric Sims, & Jing Cynthia Wu

at
Qatar Centre for Global Banking & Finance Annual Conference

Oliver de Groot
University of Liverpool Management School

July 2024

Overview

- What does this paper do?

- It takes a quantitative DSGE model with financial frictions

- It estimates the model with US data using Bayesian methods (taking account of the ZLB)

- And, it uses the structural parameter estimates to study the counterfactual under optimal (commitment) policy

- It takes a quantitative DSGE model with financial frictions

- It estimates the model with US data using Bayesian methods (taking account of the ZLB)

- And, it uses the structural parameter estimates to study the counterfactual under optimal (commitment) policy

- It takes a quantitative DSGE model with financial frictions

- It estimates the model with US data using Bayesian methods (taking account of the ZLB)

- And, it uses the structural parameter estimates to study the counterfactual under optimal (commitment) policy

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
    - First understand qualitatively how QE works in stylized New Keynesian environment

    - It's computational hard

- But, are the results useful?
    - Are we still here? Chari et al. (2009) "New Keynesian Models: Not Yet Useful for Policy Analysis"

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
  - ▶ First understand qualitatively how QE works in stylized New Keynesian environment
    - ★ Large literature developed over last 10 years
  - ▶ It's computational hard
    - ★ Well done!

- But, are the results useful?
  - ▶ Are we still here? Chari et al. (2009) "New Keynesian models: Not Yet Useful for Policy Analysis"

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
  - ▶ First understand qualitatively how QE works in stylized New Keynesian environment
    - Large literature developed over last 15 years ✓
  - ▶ It's computational hard
    - Well done!

- But, are the results useful?
  - ▶ Are we still hard? Chari et al. (2009) "New Keynesian models: Not Yet Useful for Policy Analysis"

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
  - ▶ First understand qualitatively how QE works in stylized New Keynesian environment
    - Large literature developed over last 15 years ✓
  - ▶ It's computational hard
    - Well done!

- But, are the results useful?
  - ▶ Are we still here? Chari et al. (2009) "New Keynesian models: Not Yet Useful for Policy Analysis"

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
  - ▶ First understand qualitatively how QE works in stylized New Keynesian environment
    - Large literature developed over last 15 years ✓
  - ▶ It's computational hard
    - Well done!

- But, are the results useful?
  - ▶ Are we still here? Chari et al. (2009) "New Keynesian models: Not Yet Useful for Policy Analysis"

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
  - ▶ First understand qualitatively how QE works in stylized New Keynesian environment
    - Large literature developed over last 15 years ✓
  - ▶ It's computational hard
    - Well done!

- But, are the results useful?
  - ▶ Are we still here? Chari et al. (2009) "New Keynesian Models: Not Yet Useful for Policy Analysis"

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
  - ▶ First understand qualitatively how QE works in stylized New Keynesian environment
    - Large literature developed over last 15 years ✓
  - ▶ It's computational hard
    - Well done!

- But, are the results useful?
  - ▶ Are we still here? Chari et al. (2009) "New Keynesian Models: Not Yet Useful for Policy Analysis"

- So far, so good—this an exercise we should be aspiring to do

- Why has no one done it yet?
  - ▶ First understand qualitatively how QE works in stylized New Keynesian environment
    - Large literature developed over last 15 years ✓
  - ▶ It's computational hard
    - Well done!

- But, are the results useful?
  - ▶ Are we still here? Chari et al. (2009) "New Keynesian Models: Not Yet Useful for Policy Analysis"

Four open questions

- What is the right model of QE?

- Is the effectiveness of QE/QT state dependent?

- How do we best handle the Forward Guidance (FG) Puzzle?

- How do we model the ZLB?

Four open questions

- What is the right model of QE?

- Is the effectiveness of QE/QT state dependent?

- How do we best handle the Forward Guidance (FG) Puzzle?

- How do we model the ZLB?

Four open questions

- What is the right model of QE?

- Is the effectiveness of QE/QT state dependent?

- How do we best handle the Forward Guidance (FG) Puzzle?

- How do we model the ZLB?

Four open questions

- What is the right model of QE?

- Is the effectiveness of QE/QT state dependent?

- How do we best handle the Forward Guidance (FG) Puzzle?

- How do we model the ZLB?

1. What is the right model of QE?

- Financial frictions

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- Or "Preferred habitat"

$$\text{Portfolio costs} = \frac{\kappa_S}{2} \left(\frac{B_t^S / B_t^L}{(B^S / B^L)^*} - 1 \right)^2 + \frac{\kappa_F}{2} \left(\frac{B_t^S / B_t^L}{B_{t-1}^S / B_{t-1}^L} - 1 \right)^2$$

- The choice is not innocuous
- Is it the stock or the flow that matters?
- Not sure central bankers think about QE—at least post-2009—as working through financial frictions...

1. What is the right model of QE?

- Financial frictions

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- Or "Preferred habitat"

$$\text{Portfolio costs} = \frac{\kappa_S}{2} \left(\frac{B_t^S / B_t^L}{(B^S / B^L)^*} - 1 \right)^2 + \frac{\kappa_F}{2} \left(\frac{B_t^S / B_t^L}{B_{t-1}^S / B_{t-1}^L} - 1 \right)^2$$

- The choice is not innocuous
- Is it the stock or the flow that matters?
- Not sure central bankers think about QE—at least post-2009—as working through financial frictions...

1. What is the right model of QE?

- Financial frictions

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- Or "Preferred habitat"

$$\text{Portfolio costs} = \frac{\kappa_S}{2} \left(\frac{B_t^S / B_t^L}{(B^S / B^L)^*} - 1 \right)^2 + \frac{\kappa_F}{2} \left(\frac{B_t^S / B_t^L}{B_{t-1}^S / B_{t-1}^L} - 1 \right)^2$$

- The choice is not innocuous
- Is it the stock or the flow that matters?
- Not sure central bankers think about QE—at least post-2009—as working through financial frictions...

1. What is the right model of QE?

- Financial frictions

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- Or "Preferred habitat"

$$\text{Portfolio costs} = \frac{\kappa_S}{2} \left(\frac{B_t^S / B_t^L}{(B^S / B^L)^*} - 1 \right)^2 + \frac{\kappa_F}{2} \left(\frac{B_t^S / B_t^L}{B_{t-1}^S / B_{t-1}^L} - 1 \right)^2$$

- The choice is not innocuous
- Is it the stock or the flow that matters?
- Not sure central bankers think about QE—at least post-2009—as working through financial frictions...

1. What is the right model of QE?

- Financial frictions

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- Or "Preferred habitat"

$$\text{Portfolio costs} = \frac{\kappa_S}{2} \left(\frac{B_t^S / B_t^L}{(B^S / B^L)^*} - 1 \right)^2 + \frac{\kappa_F}{2} \left(\frac{B_t^S / B_t^L}{B_{t-1}^S / B_{t-1}^L} - 1 \right)^2$$

- The choice is not innocuous
- Is it the stock or the flow that matters?
- Not sure central bankers think about QE—at least post-2009—as working through financial frictions...

2. Is the effectiveness of QE/QT state dependent?

- Let's take model of financial frictions as given

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- QE is effective if the $\geq$ is a $=$ but ineffective if the $\geq$ is a $>$
- Narrative: QE is great in a crisis because $=$ but QT during "normal times" is not contractionary because $>$
- Would be great if you can also make this constraint occasionally binding in your estimation strategy

2. Is the effectiveness of QE/QT state dependent?

- Let's take model of financial frictions as given

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- QE is effective if the $\geq$ is a $=$ but ineffective if the $\geq$ is a $>$
- Narrative: QE is great in a crisis because $=$ but QT during "normal times" is not contractionary because $>$
- Would be great if you can also make this constraint occasionally binding in your estimation strategy

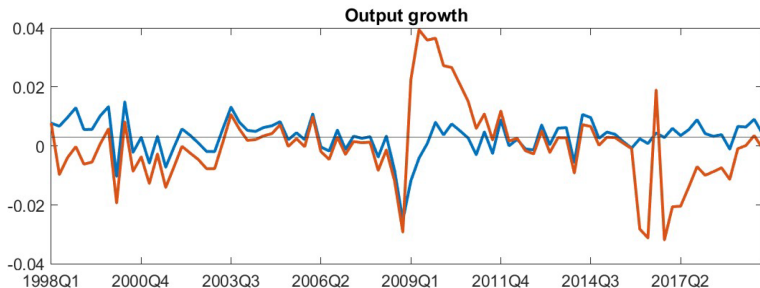# 2. Is the effectiveness of QE/QT state dependent?

- Let's take model of financial frictions as given

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- QE is effective if the $\geq$ is a $=$ but ineffective if the $\geq$ is a $>$
- Narrative: QE is great in a crisis because $=$ but QT during "normal times" is not contractionary because $>$
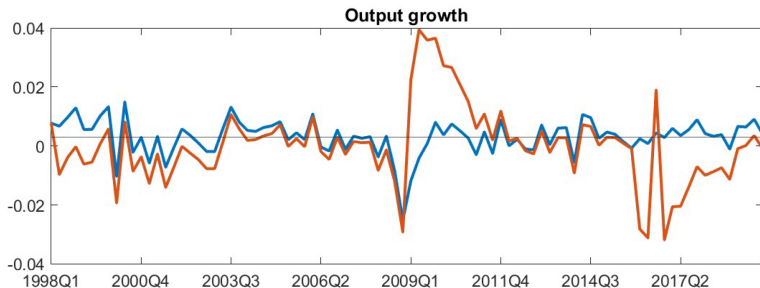- Would be great if you can also make this constraint occasionally binding in your estimation strategy

2. Is the effectiveness of QE/QT state dependent?

- Let's take model of financial frictions as given

$$V_t \geq \theta \left(Q_t F_t + \Delta Q_{B,t} B_t \right)$$

- QE is effective if the $\geq$ is a $=$ but ineffective if the $\geq$ is a $>$
- Narrative: QE is great in a crisis because $=$ but QT during "normal times" is not contractionary because $>$
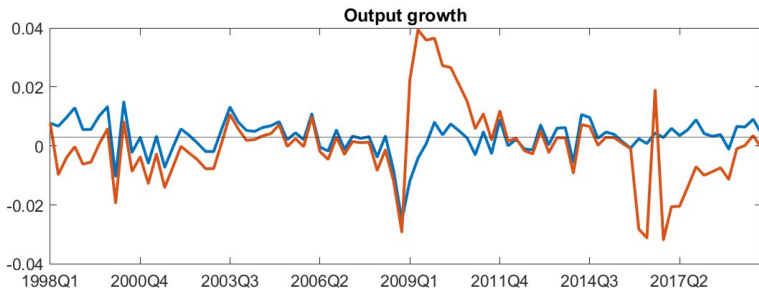- Would be great if you can also make this constraint occasionally binding in your estimation strategy
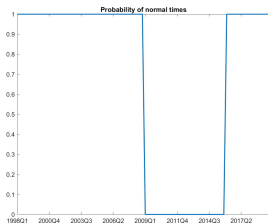
3. How do we best handle the Forward Guidance (FG) Puzzle?

- It's hard to believe the Fed could've achieved 4% output growth in 2009q1, even under optimal policy
  - A manifestation of the FG Puzzle?!
  - A mechanisms that dampens the FG Puzzle is necessary

Output growth

3. How do we best handle the Forward Guidance (FG) Puzzle?

- It's hard to believe the Fed could've achieved 4% output growth in 2009q1, even under optimal policy
- A manifestation of the FG Puzzle?!
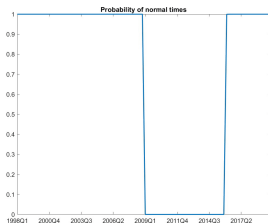- A mechanisms that dampens the FG Puzzle is necessary

Output growth

3. How do we best handle the Forward Guidance (FG) Puzzle?

- It's hard to believe the Fed could've achieved 4% output growth in 2009q1, even under optimal policy
- A manifestation of the FG Puzzle?!
- A mechanisms that dampens the FG Puzzle is necessary

Output growth

4. How do we model the ZLB?

- This paper uses the RISE toolkit
- Assumes policy (or economy) follows a regime-switching process between ZLB & normal times
- Is this the right way to model the ZLB?
  - ▶ Are the regimes endogenous (thus, potentially different under optimal policy)?
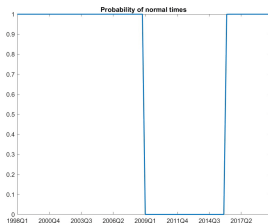 - ▶ Is the ZLB a policy choice or policy constraint?

4. How do we model the ZLB?

- This paper uses the RISE toolkit
- Assumes policy (or economy) follows a regime-switching process between ZLB & normal times
- Is this the right way to model the ZLB?
  - ▶ Are the regimes endogenous (thus, potentially different under optimal policy)?
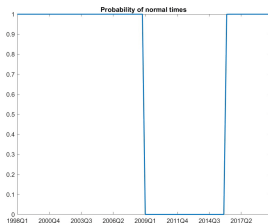 - ▶ Is the ZLB a policy choice or policy constraint?

4. How do we model the ZLB?

- This paper uses the RISE toolkit
- Assumes policy (or economy) follows a regime-switching process between ZLB & normal times
- Is this the right way to model the ZLB?
  - ▶ Are the regimes endogenous (thus, potentially, different under optimal policy)?
  - ▶ Is the ZLB a policy choice or policy constraint?

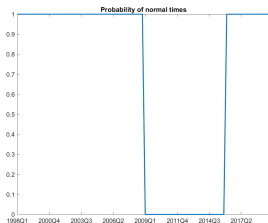# 4. How do we model the ZLB?

- This paper uses the RISE toolkit
- Assumes policy (or economy) follows a regime-switching process between ZLB & normal times
- Is this the right way to model the ZLB?
  - ▶ Are the regimes endogenous (thus, potentially, different under optimal policy)?
  - ▶ Is the ZLB a policy choice or policy constraint?

Probability of normal times

4. How do we model the ZLB?

- This paper uses the RISE toolkit
- Assumes policy (or economy) follows a regime-switching process between ZLB & normal times
- Is this the right way to model the ZLB?
  - ▶ Are the regimes endogenous (thus, potentially, different under optimal policy)?
  - ▶ Is the ZLB a policy choice or policy constraint?

Conclusion

- An admirable research question

- Has the potential to be a very significant paper in this literature

- But, many open questions for this paper, and the wider literature, to reflect on

- Good luck!

Conclusion

- An admirable research question

- Has the potential to be a very significant paper in this literature

- But, many open questions for this paper, and the wider literature, to reflect on

- Good luck!

Conclusion

- An admirable research question

- Has the potential to be a very significant paper in this literature

- But, many open questions for this paper, and the wider literature, to reflect on

- Good luck!

Conclusion

- An admirable research question

- Has the potential to be a very significant paper in this literature

- But, many open questions for this paper, and the wider literature, to reflect on

- Good luck!