

Discussion of  
"Public Debt and Changing Inflation Targets"  
by M. Krause and S. Moyen

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*Bundesbank and Banque de France Conference  
"Fiscal and Monetary Policy Challenges in the Short and  
Long Run"*

*Hamburg, 19-20 May 2011*

# Summary

## ➤ Issue

- How much the real debt burden can be decreased by increasing inflation in US

## ➤ Model

- Standard NK model with 2 features:
  - a) Debt maturity
  - b) Imperfect information/credibility

# Findings

- **About a third of the additional real U.S. public debt accrued after the economic crisis of 2008/2009 is cumulatively inflated away after ten years if the inflation target is permanently raised by four percentage points.**
- **The amount of debt inflated away increases with:**
  - the average maturity of the debt;
  - the persistence of the inflation target shock;
  - the size of the inflation target shock;
  - the inherited credibility (slow learning of a unannounced increase in the target)

# Brief Evaluation



- Very hot and important policy issue
- Very stimulating paper
- Extremely nice and well crafted DSGE model that provide a quantitative investigation that demonstrates one **should not** rise inflation to inflate debt away => **very small** gains

# Aizenman & Marion (2009)

- **Much stronger results**
  - inflation of 6% could reduce the debt/GDP ratio by 20% within four years
- **Similar factors that increase the temptation to inflate**
  - debt overhang, low starting inflation, average debt maturity, share of the public debt is held by foreign creditors
- **Krause & Moyen stress the role of forward-looking agents, credibility/learning/adaptive expectation**
  - Nice: E.g.: Thus the shorter the average maturity of public debt, the higher is the role of more firmly-anchored past inflation expectations on the sensitivity of real debt to higher actual inflation => importance of surprise inflation

# FIRST QUESTION

Dynamic inconsistency?

- ...the lower the credibility, the less the exploitable trade-off
- How this is similar to a standard Barro-Gordon type of story?
- This calls for considerations about repeated or dynamic games b/w authority and rational agents
- ....higher risk premia?

# QUESTIONS ON THE MODEL 1

## Cost-benefit analysis and welfare

- The analysis is positive, but there should be no difficulty in doing also a normative analysis
- After all...why should the US inflate the debt away?
- Is there a cost of the debt?
  - No capital
  - No OLG (int rate would depend on the stock of capital)
- Then, one would need also to consider some costs of inflating the debt => there are no costs of inflation
- Maybe comparing different way of stabilizing the debt by taxes
  - Distortionary taxes => Debt optimal way to smooth out big shocks
  - Ricardian equivalence => who cares?

# QUESTIONS ON THE MODEL 2

## Shocks and linearization

- **Target shock and signal extraction problem to capture partial credibility**
  - just needed to calibrate the variances in order to calculate the Kalman gain...But actually there are no shock in the experiments, only IRF so deterministic experiment
  - So why modeling a shock? Use the non-linear model and set an exogenous path for the target and a parameter for the degree of credibility
- **The policy rule also can be then defined non-linearly**

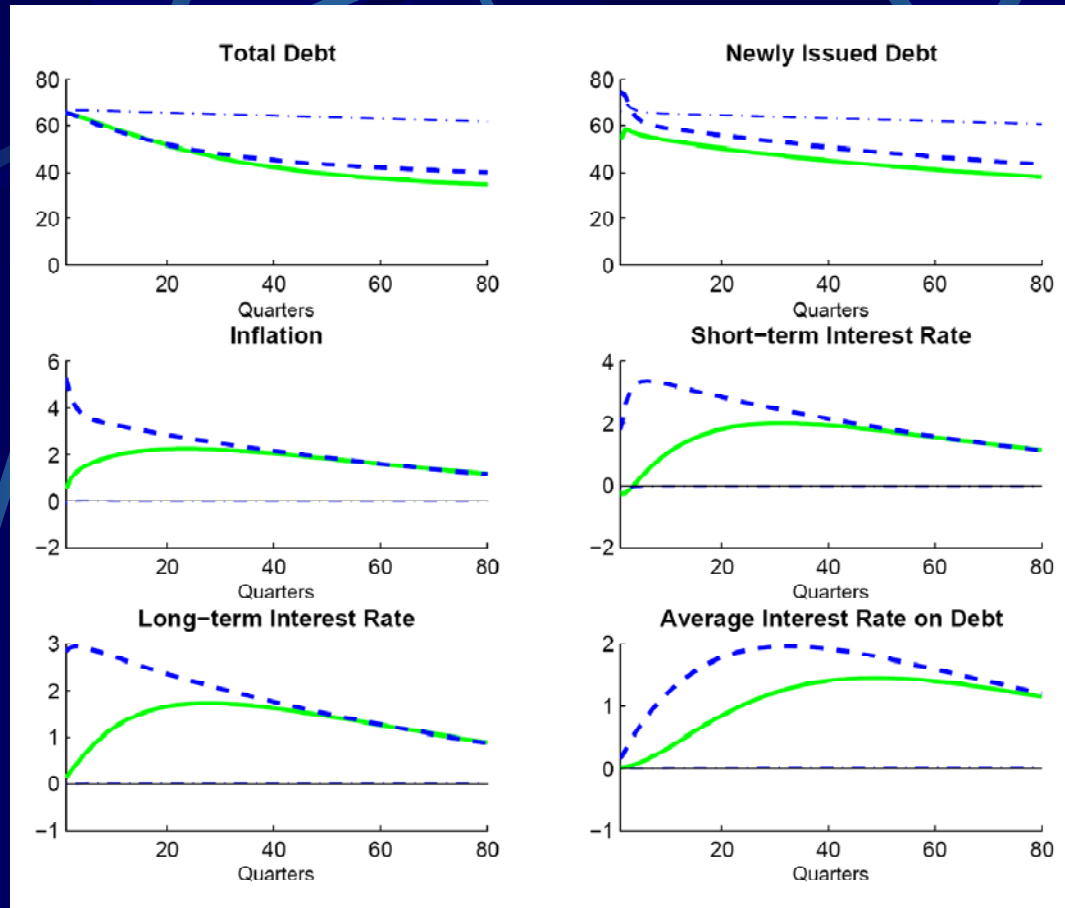
$$i_t = \rho_i i_{t-1} + (1 - \rho_i) \left[ i + \hat{\pi}_t^* + \phi_\pi (\hat{\pi}_t - \hat{\pi}_t^*) + \phi_y (\hat{Y}_t - \hat{Y}_t^n) \right] + \eta_t,$$

- **Role of money demand: why?**
  - The initial jump in new debt is due to a substitution from money holdings to bonds, induced by a higher nominal interest rate that induces to a drop in money demand. The government budget constraint mandates a commensurate increase in bonds. In our baseline calibration, this increase in bonds almost exactly offsets the initial reduction in outstanding debt arising from the jump in inflation.



# QUESTIONS ON THE MODEL 3

## The mechanism

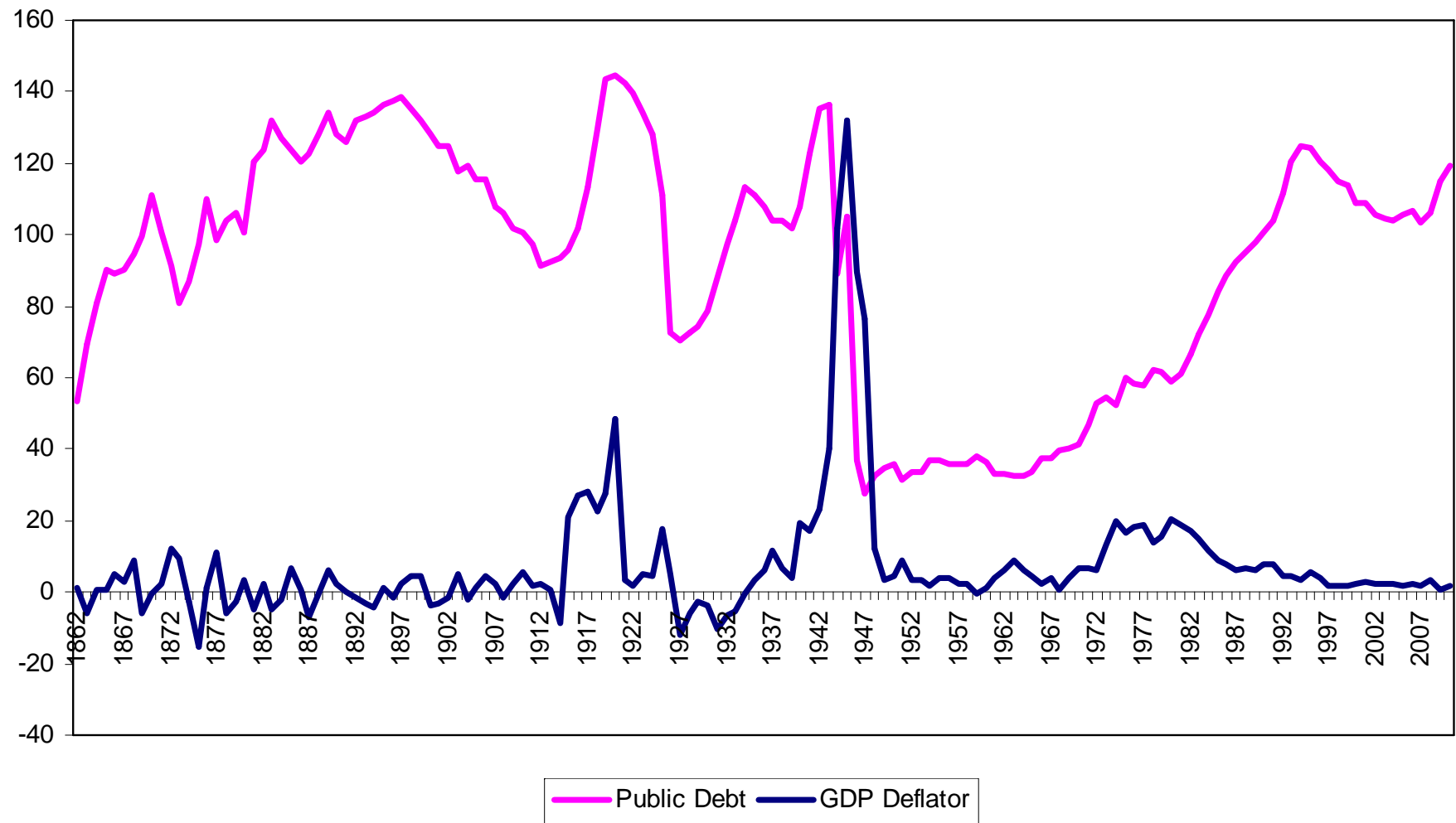


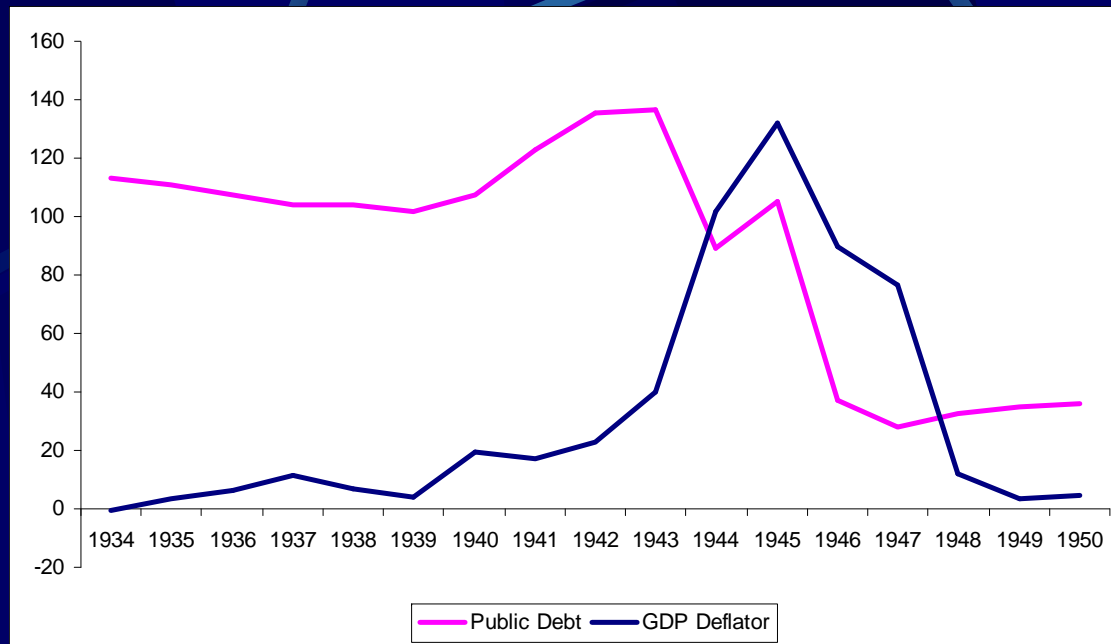
- similar dynamics on debt
- very different path of inflation ... why?
- different behaviour of interest rate
- the new interest rate follows the same process as the target

# QUESTIONS ON THE MODEL 3

## The mechanism

- Joint effect of NKPC, signal extraction and the Taylor rule
- NKPC: high inflation today only if high expected inflation in the future...
- ..but this feeds into the long-term nominal interest rate, rising it...
- But also expected deviation from target is linked to the deviation from target today through the stochastic process and the signal extraction problem
- So:
  - Either inflation is low and expected to be low => limited effect on real valued of debt and low interest rates => **imperfect information and learning**
  - Or inflation is high and expected to be high => effect on real value of debt but compensated by high interest rates => **full information**
- The model does not allow for the “more welcomed” combination: high inflation (once or for a limited period of time) and low long-term interest rates
- How?





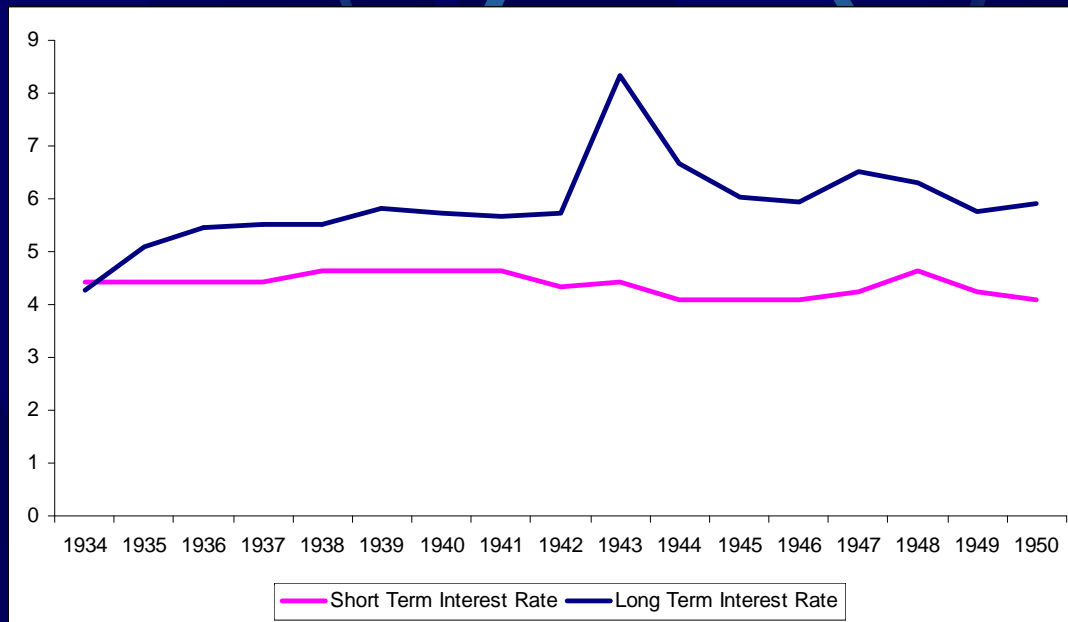
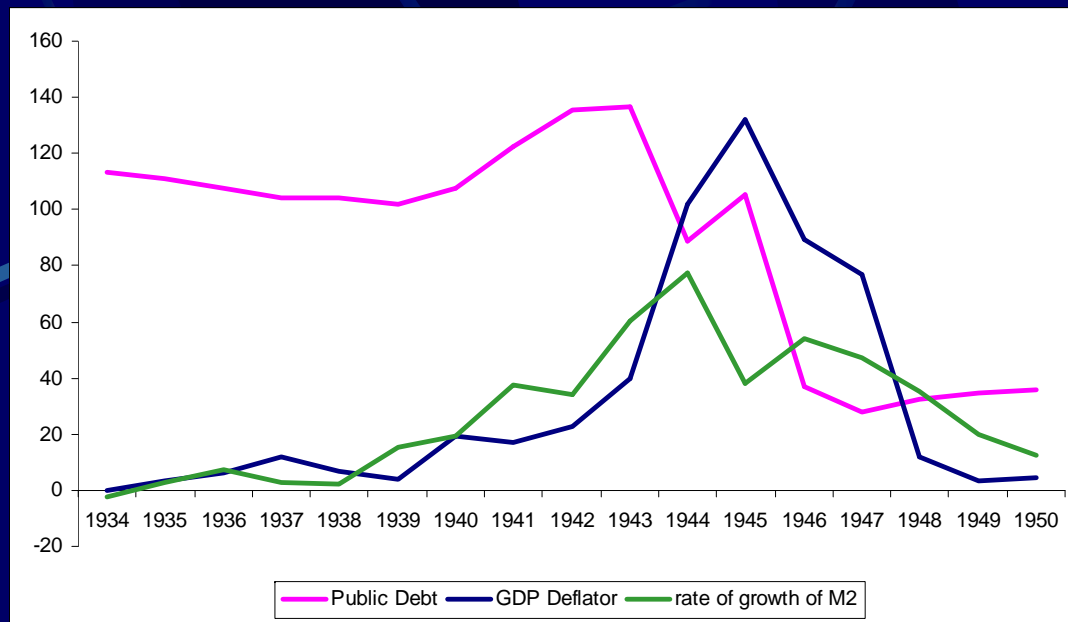
	Pub Debt	GDP Deflator
1940	107,5	19,3
1941	122,6	17,0
1942	135,3	23,0
<b>1943</b>	<b>136,5</b>	<b>40,0</b>
<b>1944</b>	<b>89,0</b>	<b>101,7</b>
<b>1945</b>	<b>105,2</b>	<b>131,8</b>
<b>1946</b>	<b>37,0</b>	<b>89,6</b>
<b>1947</b>	<b>27,8</b>	<b>76,7</b>
1948	32,4	12,1
1949	34,7	3,2

## DEBT MONETIZATION



**A.M Lire  
=  
Allied  
Military  
Lire**





# QUESTIONS ON THE MODEL 3

## The mechanism

- The model does not allow for the right combination: high inflation (once or for a limited period of time) and low long-term interest rates
- How? The problem is the policy rule
- Why using an interest rate rule when modelling a monetary policy that monetize the debt?
- Role for money supply: a credible path of money supply could engineer much higher debt reduction
- NEEDED: a step change in the price level, not a persistent rise in inflation