

Discussion of Jarocinski and Mackowiak,
**Monetary and Fiscal Interactions
and the Euro Area's Malaise**

Michael Woodford

Columbia University

BIS Research Network Meeting
September 28, 2017

The Model of the Malaise: Comments

- 1 The possibility of a low-inflation trap doesn't depend on any features that are **special to the euro zone**

The Model of the Malaise: Comments

- ① The possibility of a low-inflation trap doesn't depend on any features that are **special to the euro zone**
- The set of equilibrium paths for $\{Y_t, \Pi_t, R_t\}$ are determined purely by equations (2), (6) and (8) [CB reaction function, Euler equation, Phillips curve], together with requirement that TVC be satisfied

The Model of the Malaise: Comments

- ① The possibility of a low-inflation trap doesn't depend on any features that are **special to the euro zone**
- The set of equilibrium paths for $\{Y_t, \Pi_t, R_t\}$ are determined purely by equations (2), (6) and (8) [CB reaction function, Euler equation, Phillips curve], together with requirement that TVC be satisfied
 - implied restrictions are **independent of fiscal policy** specification, as long as fiscal policy assumed to be **Ricardian**
 - hence doesn't matter that there are multiple fiscal authorities, or that CB is not committed to maintain public debt default-free [the EZ-relevant features of model]

Is the Euro the Problem?

- The possibility of a self-fulfilling solvency-risk crisis for regional fiscal authority is motivated by situation of southern EZ countries
 - but this **doesn't** have any consequences for equations that determine $\{Y_t, \Pi_t, R_t\}$
 - only affects dynamics of risk premia and public debt levels

Is the Euro the Problem?

- The possibility of a self-fulfilling solvency-risk crisis for regional fiscal authority is motivated by situation of southern EZ countries
 - but this **doesn't** have any consequences for equations that determine $\{Y_t, \Pi_t, R_t\}$
 - only affects dynamics of risk premia and public debt levels
- Doesn't mean the model of low-inflation trap is wrong for EZ; but not a critique of EZ structure or policies

The Model of the Malaise: Comments

- ② No motivation is given for why particular equilibria are **selected** at each point in time, from among those that are possible [arbitrary “**sunspot**” events]

The Model of the Malaise: Comments

- ② No motivation is given for why particular equilibria are **selected** at each point in time, from among those that are possible [arbitrary “**sunspot**” events]
- Arbitrarily assumed that
 - in 2012, **but not before**, people suddenly begin to expect convergence to low-inflation steady state
 - in 2012, people expect intermediate default probability for South debt [**middle of 3 equilibria**]; but lowest possible eq'm default rate in **all other years**

The Model of the Malaise: Comments

- ② No motivation is given for why particular equilibria are **selected** at each point in time, from among those that are possible [arbitrary “**sunspot**” events]
- Arbitrarily assumed that
 - in 2012, **but not before**, people suddenly begin to expect convergence to low-inflation steady state
 - in 2012, people expect intermediate default probability for South debt [**middle of 3 equilibria**]; but lowest possible eq'm default rate in **all other years**
- Apart from arbitrariness of the timing, the particular equilibria selected in 2012 are not obviously ones that it should be **easy for people to coordinate upon**

Multiple Equilibrium Default Probabilities

- Whenever gov't fiscal needs are in an intermediate range, there are **three possible equilibria** for expected default probability that year:
 - certain of no default \Rightarrow high debt value \Rightarrow low debt issuance \Rightarrow no chance of default
 - certain of default \Rightarrow low debt value \Rightarrow high debt issuance \Rightarrow default certain
 - critical intermediate probability \Rightarrow intermediate debt issuance, that results in default with just that probability

Multiple Equilibrium Default Probabilities

- Whenever gov't fiscal needs are in an intermediate range, there are **three possible equilibria** for expected default probability that year:
 - certain of no default \Rightarrow high debt value \Rightarrow low debt issuance \Rightarrow no chance of default
 - certain of default \Rightarrow low debt value \Rightarrow high debt issuance \Rightarrow default certain
 - critical intermediate probability \Rightarrow intermediate debt issuance, that results in default with just that probability
- Assumed that in 2012, **intermediate eq'm** occurs, rather than either of the others; but **no-default eq'm** is selected in other years, if it exists

Multiple Equilibrium Default Probabilities

- This is the kind of situation in which Morris and Shin (1998) argue that even a small lack of common knowledge about the gov't's exact fiscal needs should result in a **unique** equilibrium [“global games” selection]
 - then no role for “sunspot” state in determining default probability, for given fiscal need
 - and the eq'm default probability is **never** the intermediate one

Multiple Equilibrium Default Probabilities

- Moreover, even assuming exact common knowledge of the aggregate state: difficult to see how people would succeed in coordinating on an equilibrium with the intermediate default probability expected in some sunspot state

Multiple Equilibrium Default Probabilities

- Moreover, even assuming exact common knowledge of the aggregate state: difficult to see how people would succeed in coordinating on an equilibrium with the intermediate default probability expected in some sunspot state
- The intermediate eq'm is an **unstable fixed point** of the best-response mapping:
 - expect slightly higher default probability \Rightarrow higher debt issuance \Rightarrow default probability **even higher** than expected
 - expect slightly lower default probability \Rightarrow lower debt issuance \Rightarrow default probability **even lower** than expected

Multiple Equilibrium Default Probabilities

- Moreover, even assuming exact common knowledge of the aggregate state: difficult to see how people would succeed in coordinating on an equilibrium with the intermediate default probability expected in some sunspot state
- The intermediate eq'm is an **unstable fixed point** of the best-response mapping:
 - expect slightly higher default probability \Rightarrow higher debt issuance \Rightarrow default probability **even higher** than expected
 - expect slightly lower default probability \Rightarrow lower debt issuance \Rightarrow default probability **even lower** than expected
- Hence adaptive **learning dynamics** should not converge to an eq'm of this kind

Multiple Equilibrium Inflation Expectations

- Model is one in which there are **two** possible steady-state inflation rates, each consistent with CB reaction function [given ZLB constraint]
 - target inflation rate [positive]
 - rate of deflation that [when $i = 0$] implies real return consistent with steady-state Euler equation

Multiple Equilibrium Inflation Expectations

- Model is one in which there are **two** possible steady-state inflation rates, each consistent with CB reaction function [given ZLB constraint]
 - target inflation rate [positive]
 - rate of deflation that [when $i = 0$] implies real return consistent with steady-state Euler equation
- But the low-inflation steady state is an **unstable fixed point** of best-response mapping:
 - expecting slightly higher inflation than that, years in future, would imply **even higher** actual eq'm inflation rate now

Multiple Equilibrium Inflation Expectations

- Model is one in which there are **two** possible steady-state inflation rates, each consistent with CB reaction function [given ZLB constraint]
 - target inflation rate [positive]
 - rate of deflation that [when $i = 0$] implies real return consistent with steady-state Euler equation
- But the low-inflation steady state is an **unstable fixed point** of best-response mapping:
 - expecting slightly higher inflation than that, years in future, would imply **even higher** actual eq'm inflation rate now
 - not “E-stable” \Rightarrow adaptive learning dynamics **won't converge** to this kind of equilibrium (Benhabib *et al.*; Woodford, 2013)

The Proposed Remedy: Comments

- ① Even accepting the diagnosis of the malaise, this is not the only kind of policy commitment that would (if credible) eliminate the low-inflation trap as a possible equilibrium
— a greater departure from conventional policy than needed

The Proposed Remedy: Comments

- ① Even accepting the diagnosis of the malaise, this is not the only kind of policy commitment that would (if credible) eliminate the low-inflation trap as a possible equilibrium
 - a greater departure from conventional policy than needed
- Simpler proposal: commit to a **nominal floor** (or non-negative minimum nominal growth rate) for ECB liabilities, together with fiscal rules that imply non-explosive growth of gov't liabilities **apart from those held by ECB**

The Proposed Remedy: Comments

- ① Even accepting the diagnosis of the malaise, this is not the only kind of policy commitment that would (if credible) eliminate the low-inflation trap as a possible equilibrium
 - a greater departure from conventional policy than needed
- Simpler proposal: commit to a **nominal floor** (or non-negative minimum nominal growth rate) for ECB liabilities, together with fiscal rules that imply non-explosive growth of gov't liabilities **apart from those held by ECB**
 - such a commitment is inconsistent with the ZLB-trap steady state (or eq'a converging to it), but consistent with the target-inflation steady state (Woodford, 2003; Eggertsson and Woodford, 2003)

An Alternative Remedy

- Simpler proposal: commit to a **nominal floor** for ECB liabilities
...
- unlike proposal here, this would not require any non-standard policy (monetary or fiscal) under ordinary circumstances (**simply eliminates possibility of self-fulfilling departure from these expectations**)

An Alternative Remedy

- Simpler proposal: commit to a **nominal floor** for ECB liabilities
 - ...
 - unlike proposal here, this would not require any non-standard policy (monetary or fiscal) under ordinary circumstances (**simply eliminates possibility of self-fulfilling departure from these expectations**)
 - commitment would be consistent with traditional doctrine of ECB (the “monetary pillar”)

An Alternative Remedy

- Simpler proposal: commit to a **nominal floor** for ECB liabilities
 - ...
 - unlike proposal here, this would not require any non-standard policy (monetary or fiscal) under ordinary circumstances (**simply eliminates possibility of self-fulfilling departure from these expectations**)
 - commitment would be consistent with traditional doctrine of ECB (the “monetary pillar”)
 - would not require that it be credible that fiscal authorities will not care about explosive path of real public debt

The Proposed Remedy: Comments

- 2 For the proposed commitment to be effective, requires that people immediately believe in different policy **arbitrarily far in future**, and **correctly understand** the equilibrium dynamics implied by the new policy

The Proposed Remedy: Comments

- ② For the proposed commitment to be effective, requires that people immediately believe in different policy **arbitrarily far in future**, and **correctly understand** the equilibrium dynamics implied by the new policy
- If instead, continue **(at least at first)** to expect **same far-future outcomes as before**, then the new policy will be **contractionary/deflationary** rather than expansionary/inflationary

The Proposed Remedy: Comments

- ② For the proposed commitment to be effective, requires that people immediately believe in different policy **arbitrarily far in future**, and **correctly understand** the equilibrium dynamics implied by the new policy
- If instead, continue **(at least at first)** to expect **same far-future outcomes as before**, then the new policy will be **contractionary/deflationary** rather than expansionary/inflationary
 - policy still expected to be Ricardian (in long run) \Rightarrow public debt has no effect on output, inflation determination
 - raising nominal interest rates \Rightarrow raises perceived real return, reduces desired spending

The Proposed Remedy: Comments

- ② For the proposed commitment to be effective, requires that people immediately believe in different policy **arbitrarily far in future**, and **correctly understand** the equilibrium dynamics implied by the new policy
- If instead, continue **(at least at first)** to expect **same far-future outcomes as before**, then the new policy will be **contractionary/deflationary** rather than expansionary/inflationary
- Hence risky to try this

The Proposed Remedy: Comments

- ③ Proposal to use eurobond issuance to preclude possibility of self-fulfilling solvency crises for peripheral EZ countries: a sound idea, and model worth developing

The Proposed Remedy: Comments

- ③ Proposal to use eurobond issuance to preclude possibility of self-fulfilling solvency crises for peripheral EZ countries: a sound idea, and model worth developing
- But model of solvency crisis should be embedded in a different macro model than here
 - no interaction between solvency-crisis model and macro model of potential liquidity trap
 - would be desirable to embed solvency-crisis model in a macro model where higher default premia have consequences for the real allocation of resources