Fiscal Backing

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Macroeconomic Tasks

- Three central tasks of policy
  1. Stabilize inflation & real activity
  2. Deliver policies that make government solvent
  3. Ensure the safety & soundness of financial system

- Of course, governments do other things
  - these are the key *macroeconomic* tasks
    - prerequisites for doing anything else successfully

- Each task requires some type of

  fiscal backing
Fiscal Backing

- What is fiscal backing?

*Fiscal backing is assured when the government is willing and able to raise real resources that may be used to pay off government liabilities*

- Government can raise resources only if it can generate tax revenues
  - taxing capacity is essential
  - only the government can provide backing
Fiscal Backing

- Fiscal backing sheds fresh light on many issues
  1. Sovereign debt crises
  2. Effects of monetary policy
  3. Interactions of monetary & financial stability policies
  4. Importance of central bank balance sheets
  5. Optimal mix of monetary/fiscal/debt management policies

- Intrinsically a long-run notion: How are fiscal expectations anchored?

- Designs of euro area & most inflation-targeting regimes downplay (neglect?) fiscal backing
Policy Mantras

- Central banking’s ubiquitous mantra

  anchor inflation expectations

- I’ll argue cannot anchor inflation expectations without guaranteeing appropriate fiscal backing

- Propose a new mantra for macro policy

  anchor fiscal expectations

- Given our institutional arrangements for macro policy, this is much harder to do
How We Got Here

- EMU founded on monetarist principles
  - good monetary policy can keep inflation low & stable
  - really bad—Weimar Republic bad—fiscal policy can produce high inflation
  - this belief permeates policy thinking internationally

- Solution: create a single independent central bank
  - require national governments to follow crude fiscal guidelines (Maastricht)
    - designed to avoid really bad fiscal policies

- Fiscal union deemed politically difficult
  - a successful monetary union will ease creation of fiscal union

- Where is the fiscal backing?
How We Got Here

- Monetarism’s dirty little secret
  - *assumes* deficits beget surpluses
  - give central bank specific & narrow mandate to control inflation
  - proscribe central bank purchases of sovereign debt
  - requires a leap of faith: a central bank with sufficient resolve can force the fiscal backing

- A puzzle: why would you design policy institutions that *by construction* create a game of chicken between policy authorities?
How We Got Here

- World economic developments have subverted this monetarist fantasy
  - CBs don’t operate as they used to
    - no longer conduct routine open-market operations
    - balance sheets have exploded & become riskier
    - given enhanced financial stability tasks
    - pay interest on reserves
    - FP intransigent, so MP left to do it all
  - Government debt in euro area: 65% in 2006 to 93% now; elsewhere, debt has grown more
    - fiscal adjustments to retire debt have been extraordinarily difficult
  - These developments put fiscal backing at forefront
Background: Monetary-Fiscal Interactions

- A fundamental asset-pricing valuation relation

\[
\text{Value of Asset} = EPV(\text{Future Cash Flows})
\]

- For nominal government liabilities, \( M \) & \( B \):

\[
\frac{M_{-1} + QB_{-1}}{P} = EPV(\text{Surpluses + Seigniorage})
\]

- Cash flows for government liabilities—“backing”—are
  - any excess of revenues over expenditures, excluding interest payments
  - revenues generated by creating new monetary base

- This valuation equation holds in all models
Background: Monetary-Fiscal Interactions

\[ \frac{M_{-1} + QB_{-1}}{P} = EPV(\text{Surpluses + Seigniorage}) \]

- Three policy mixes viewed through this equation

1. If CB successfully targets inflation, then right-side must adjust
   - fiscal backing from surplus adjustments
2. Weimar Republic lost control of inflation
   - monetary backing from seigniorage adjustments
3. With neither fiscal nor monetary backing, right side fixed
   - price level, \( P \), and bond price, \( Q \) (future inflation), must adjust
1. Three illustrations of how fiscal backing matters for monetary policy

2. The role of fiscal backing in the central bank’s balance sheet

3. Optimal combination of monetary, fiscal & debt management policies

4. A really bad idea
Fiat Currency Fragility

- Unbacked money allows certain pathologies to arise
- Monetary models permit many equilibrium price-level paths: $P_t \equiv P$ & speculative hyperinflations
  - no natural floor to value of fiat money
  - inflation rises today simply because people believe it will rise in future
  - no market mechanism prevents explosive price paths, which demonetize the economy, making nominal govt liabilities become worthless
  - pathologies arise even if MP actively targets inflation

- If FP passively adjusts taxes with real government debt (deficits beget surpluses)...
  - as real debt $\to 0$, taxes $\to 0$
  - here there is “fiscal backing,” but it is of the wrong form to eliminate pathology
Different kinds of backing can eliminate the pathologies

Suppose FP sets taxes according to

$$\tau_t = \gamma_0 + \gamma_1 \frac{B_{t-1}}{P_{t-1}} + \gamma_2 \pi_t, \quad \gamma_1, \gamma_2 > 0$$

- as $\pi \to \infty$, $B/P \to 0$ but $\tau \to \infty$
- people will see their tax liabilities far exceed their wealth in form of govt debt
- reduce consumption & increase saving to pay taxes
- lowers aggregate demand & reduces inflation

Response of taxes to inflation can be tiny
- backing may be hard to detect in data
- but it still eliminates unstable solutions as equilibria
Fiat Currency Fragility

- Can also eliminate pathologies with credible announcements of policy
- Fiscal authority says that if price level gets too high...
  - it will switch from passive FP to an active policy with a fixed, constant primary surplus
  - places a lower bound on the real value of govt debt ($= EPV(\text{primary surpluses})$)
  - a floor on $B/P \implies$ a ceiling on $P$
  - places a floor on value of nominal govt liabilities
- This policy—if credible—rules out explosive price paths
  - govt will never have to take this action in equilibrium
  - there will be no evidence in data of the fiscal backing
Fiat Currency Fragility

- Fiat money equilibria must have fiscal backing
- In countries with a single monetary & fiscal authority, such interventions can (more?) readily be assured
- In EMU, it’s not at all clear fiscal expectations are anchored on such backing
  - if a fiscal intervention were to occur, how would it occur?
  - given the euro area’s difficulties arriving at fiscal consensus, what are fiscal expectations?
- These examples may be a bit airy-fairy (though they pertain to the formal models now used in policy institutions)
- Now turn to a more practical example of fiscal backing
Monetary Policy Effects

- Monetary & fiscal policies always interact to determine inflation

- In conventional monetarist/new Keynesian world
  - central bank tightens by raising nominal rate
  - higher interest rate raises interest payments & nominal debt growth
  - makes bondholders feel wealthier & increases demand
  - wealth effect eliminated by commitment to back debt increases with higher taxes/lower spending (deficits beget surpluses)
  - fiscal backing gives monetary policy the ability to control inflation

- When fiscal backing is not assured, central bank’s ability to control inflation called into question
Monetary Policy Effects

- The fiscal consequences of U.S. monetary tightening

- In 2012, U.S. 10-year Treasury bond rate was 1.8%
  - net interest was 7.8% of federal expenditures
  - if rates rise to 50-year average of 6.6%
  - net interest rises to 28.6% of expenditures
  - about a $1 trillion increase in deficit
  - requires $1 trillion increase in present value of surpluses

- Given political environment, will deficits beget surpluses? (Reflect on past few years in U.S. & elsewhere)

- If they do not, higher interest rates will be inflationary

- Logic applies universally as interest rates rise to “normal” levels
Monetary Policy Effects

- Without fiscal backing, MP effects are perverse
- MP “tightening”: open-market sale or higher policy interest rate
  - raises deficit & debt in hands of public
  - if higher debt does not portend higher taxes (no fiscal backing assured)...
  - bondholders feel wealthier & increase demand for goods
  - raises inflation
- With fiscal backing—higher taxes in response to debt—wealth effects are eliminated
  - inflation falls
Central Bank Balance Sheets

- Conventional & still-prevalent view
  - CB balance sheet irrelevant: can always create reserves to recapitalize

- Some things about central banking have changed
  1. Many CBs explicitly target inflation
     - dramatically alters options available to CB
  2. CB assets far riskier than in past
     - loans to private sector w/ questionable collateral
     - long-term assets subject to revaluation risk
  3. CBs pay interest on reserves
     - fight inflation by raising this interest rate
     - raises interest costs across the board
  4. CBs more concerned with financial stability
     - unusual & risky balance sheets may be permanent
  5. Political economy changed
     - CBs more under attack than pre-crisis
Central Bank Balance Sheets

- In the Euro Area, even the idea of fiscal sharing as insurance has not gained acceptance.

- What will happen if the ECB has a balance sheet emergency?
  - serious doubts about whether fiscal backing is assured
  - particularly if the ECB makes controversial moves

- We have been in non-normal times for 6 years
  - world keeps throwing up unprecedented things
  - but eventually, CBs will move toward more contractionary policies
Central Bank Balance Sheets

- A monetary contraction: sell assets to shrink reserves
  - if a CB has negative net worth, contraction might not be possible
  - markets will see contraction requires more assets than CB has

- Could contract by raising interest rates on reserves
  - need to sell more assets to finance interest on reserves
  - higher rates on reserves will drive up rates on close substitutes (govt bonds)
  - reduces value of long-term assets
  - raises interest expenses for government

- These difficulties disappear if the CB is assured fiscal backing
  - requires a clear commitment from member nations
Central Bank Balance Sheets

- Most studies do not find balance sheets too fragile
- Biggest fear about an unbacked CB balance sheet
  - CB may avoid taking decisions that could place its balance sheet in jeopardy
- Examples of such decisions
  1. aggressive monetary contractions
  2. lender-of-last-resort functions
  3. purchases of risky (private) assets
  4. politically unpopular decisions that could make fiscal backing less likely
- Guaranteed fiscal backing is essential for independent monetary policy
  - CB cannot go hat in hand to government
  - how would this play out in euro area?
- Work by Peter Stella is required reading
Nominal vs. Real Debt

- Real government debt different from nominal debt
  - real debt: a claim to “goods,” which government may not have available
  - nominal debt: a claim to “currency,” which government can always create...if it controls its currency

- Euro Area countries effectively issue real debt
  - creation of euros not controlled by individual members
  - if government cannot repay, default is only option
  - default is messy & creates a lot of uncertainty about who will bear the costs

- Nominal debt permits other options: surprise changes in inflation & nominal interest rates
  - this may devalue outstanding debt but avoids default
  - debt serves as a “fiscal cushion” to absorb shocks
Optimal Macro Policies

- What is the optimal mix of monetary & tax policies, given government expenditures & other exogenous shocks?
  - use simplest textbook model
  - taxes distort labor-leisure choice
  - monopolistic competition suppresses steady-state output
  - may also have sticky goods prices
  - govt issues nominal, non-state-contingent debt
  - assume government can fully commit & there is no “initial period”

- Existing work finds...
Optimal Macro Policies

- Sticky prices support the Great Wall of Policy

Supports inflation targeting & passive fiscal policy
The Great Wall of Policy

Monetary Policy

Fiscal Policy
Optimal Macro Policies

- Sticky prices support the Great Wall of Policy
  - separate monetary & fiscal policy making
  - task MP with targeting inflation
  - task FP with ensuring government solvency

- Works only if fiscal backing is assured
Optimal Macro Policies

- Surprise!

- Strict separation of tasks relies on all government debt being short term
  - for many questions, maturity structure of debt irrelevant
  - but not for this one
  - once debt management brought into picture...
  - always a role in optimal policy for surprise inflation & interest rates to revalue debt
  - draws on Leeper-Zhou (2014)
Why Maturity Structure Matters

- When all debt is one period...
  - bond price and short-term policy interest rate identical
  - future MP cannot directly relieve current fiscal needs

\[
\frac{M_{-1} + i_{-1}B_{-1}}{P} = EPV(\text{Surpluses} + \text{Seigniorage})
\]

- Larger fiscal needs raise right side
  - need to have \(P\) jump to revalue liabilities
  - sticky prices \(\Rightarrow\) volatile \(P\) reduces welfare
  - better to keep \(P\) stable & raise taxes

- Multi-period debt \(\Rightarrow\) bond price depends on future MP
  - future MP can affect market value of debt

\[
Q_t = \left\{ E_t[i_t \cdot i_{t+1} \cdot i_{t+2} \cdot \ldots] \right\}^{-1}
\]
Why Maturity Structure Matters

- Have bonds at all maturities; $Q$ is price of bond portfolio

\[
\frac{M_{-1} + QB_{-1}}{P} = EPV(Surpluses + Seigniorage)
\]

- Larger fiscal needs raise right side
  - can be met by higher $P$ & lower $Q$
  - lower $Q$ comes from MP commitment to raise policy rates in future
  - higher inflation spread over entire maturity structure; much smaller increase in inflation each period
  - welfare loss from small, persistent increase in inflation is less than from higher taxes
  - role of inflation rises with average maturity of debt
  - trade off more inflation volatility for less output volatility
The Power of Maturity Structure

- Suppose policy optimally chooses the short interest rate, $i_t$, the labor tax rate, $\tau_t$, and the average maturity.

- In the canonical new Keynesian model, optimal policy can achieve the first best!

- With no tradeoff, policy fully stabilizes inflation and output gap.
  - it does not necessarily stabilize output & consumption.
The Power of Maturity Structure

- Valuation equation becomes

\[ \frac{B_{t-1}}{P_t} = E_t \sum_{k=0}^{\infty} R_{t,t+k} L_{t,k} \text{Surpluses}_{t+k} \]

\( R_{t,t+k} \): real \( k \)-period discount factor; \( L_{t,k} \): \( k \)-period “maturity” factor

- Larger fiscal needs reduce \{\text{Surpluses}_t\}
  - use MP, \{i_t\}, to stabilize gap
  - use FP, \{\tau_t\} to stabilize inflation
  - use maturity structure, \{L_t\} to ensure solvency

- A provocative finding that needs more study
“Federal Reserve Accountability and Transparency Act of 2014” introduced in U.S. Congress

requires Fed to submit “... a Directive Policy Rule... which shall describe the strategy or rule of the Federal Open Market Committee for the systematic quantitative adjustment of the Policy Instrument Target to respond to a change in the Intermediate Policy Inputs”

and Fed must explain why its policy deviates from a “Reference Policy Rule” of the form

\[ i_t = 2 + \bar{\pi}_t + 0.5(y_t - y_t^p) + 0.5(\bar{\pi}_t - 2) \]

(\(\bar{\pi}_t\) is 4-quarter average inflation)

Advocated & promulgated by John Taylor, among others
A bad idea on many levels

1. It presumes that actual policy can be quantified as a simple—Policy Directive—rule

2. It narrowly circumscribes reference policy
   - can respond only to inflation & output gap
   - must respond in very specific manner
   - must respond to an ill-defined & ill-measured concept—the gap
   - proscribes systematic reaction to commodity prices, domestic or foreign financial conditions, etc.

3. It enshrines the Taylor rule
   - elevates it from a *description* of MP to a *prescription* for MP
How Little We’ve Learned

▶ In the context of this talk...

4. It fails to ensure that the appropriate FP will be in place
   ▶ no reason to think Taylor rule is good MP if FP does not conform
   ▶ legislators want to limit Fed’s behavior without committing fiscal backing
How Little We’ve Learned

- I had thought that if this crisis taught us anything, it taught us that MP & FP are intimately intertwined

- Dangerous to reform MP w/o compatible reform of FP
  - some govts got this—Chile, Norway, NZ, Sweden: reformed FP before adopting IT
  - euro area is poster child for cart-before-the-horse reforms
  - adoption of this bill puts U.S. in same spot as euro area
Take Aways

1. Perception that MP can always stop an inflation that breaks out *assumes deficits beget surpluses*
   - nothing in our institutional arrangements guarantees this fiscal behavior
   - fiscal expectations not well anchored

2. Existing monetary-fiscal frameworks largely silent on how policy tensions get resolved
   - needs resolution before the big fiscal stress hits

3. Counterproductive to adopt MP rules w/o FP rules
   - need more research on *joint* MP-FP rules
   - need to bring political economy in

4. Inflation plays a role in an optimal monetary/fiscal/debt management policy

5. **Fiscal backing** essential to well-functioning, successful monetary & financial stability policies
A Team Effort

- Creating monetary or financial policy arrangements without compatible fiscal policy...

- Is like having this team
A Team Effort
A Team Effort

- But playing only these guys
A Team Effort