Fiscal Backing: A Long View

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Fiscal Backing

- Fiscal backing a useful organizing principle
- Sheds fresh light on many issues
  1. Sovereign debt crises
  2. Effects of monetary policy
  3. Importance of central bank balance sheets
  4. Options for fiscal consolidations
- Intrinsically a long-run notion: How are fiscal expectations anchored?
- Designs of Euro Area & inflation-targeting regimes downplay fiscal backing
How We Got Here

- EMU founded on monetarist principles
  - appropriate monetary policy can keep inflation low & stable
  - this belief permeates macro thinking

- Monetarism’s dirty little secret
  - assume deficits beget surpluses
  - requires a leap of faith: a central bank with sufficient resolve can force the fiscal backing

- Historical aside: this was not a secret to some
  - early Friedman, Tobin, Brunner & Meltzer, Wallace
  - recognized effects of MP hinge on sense in which FP held “constant”

- Until the current crisis, we ignored fiscal backing
  - either it was assured or it didn’t seem to matter
How We Got Here

- We recognize egregious absence of fiscal backing
  - sovereign debt troubles, high & volatile inflation
- These “special cases” yield a monetarist corollary
  - if FP forces central bank to monetize debt...
  - MP may lose control of inflation
  - monetary backing replaces fiscal backing
- Solution: independent CBs with clear mandates
  - prevents monetary backing
  - but does not assure fiscal backing
How We Got Here

- World economic developments have burst this comfortable monetarist bubble
  - CBs don’t operate as they used to
    - no longer conduct routine open-market operations
    - CB balance sheets have exploded & become riskier
    - pay interest on reserves
    - FP intransigent, so MP left to do it all
  - Government debt in Euro Area: 65% in 2006 to 90% in 2012; elsewhere, debt has grown more
    - fiscal adjustments to retire debt have been unusually difficult
- These developments put fiscal backing at forefront
This Talk

1. Two illustrations of how fiscal backing matters for monetary policy

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

3. Alternative fiscal consolidation schemes
Fiat Currency Fragility

- Long recognized that unbacked money allows certain pathologies to arise in our models
- 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 \( \rightarrow 0 \), taxes \( \rightarrow 0 \)
  - here there is “fiscal backing,” but this type of backing cannot eliminate the indeterminacy
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

- They reduce consumption & increase saving to pay future 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 by announcing policy actions off equilibrium paths
- 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
  - this places a lower bound on the real value of govt debt equal to expected present value of primary surpluses
  - a floor on $B/P \Rightarrow$ a ceiling on $P$
  - places a floor on value of nominal govt liabilities
- This policy—if credible—immediately 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?
- This example may be a bit airy-fairy (though it pertains to the formal models now in use)
- 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 U.S. political environment, will deficits beget surpluses? (Reflect on past few years)
- If they do not, higher interest rates will be inflationary
- Without the right fiscal backing, monetary “contractions” are inflationary
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. CB assets far riskier than in past
     - loans to private sector w/ questionable collateral
     - long-term assets subject to revaluation when interest rates change
  2. CBs pay interest on reserves
     - fight inflation by raising this interest rate
     - raises interest costs across the board
  3. Many CBs explicitly target inflation
     - can conflict with the multitude of other tasks taken on by CBs
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 5 years

- world keeps throwing up unprecedented things
- but eventually, CBs will move toward more contractionary policies
Central Bank Balance Sheets

- A typical 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

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

- 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. 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?
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
Nominal vs. Real Debt

- Sims emphasizes surprise inflation as a fiscal cushion
  - surprise capital gains & losses on U.S. Treasuries equal $\pm 6\%$ of value of debt
  - Euro Area countries agreed to no fiscal cushion
  - EA’s cushion: defaults & EU receiverships

- Long-term nominal debt smoothes inflation over time
  - no need for high & volatile inflation to revalue debt

- Recent research finds that with long nominal debt, can achieve *nearly equivalent welfare*...
  - under active fiscal as under passive fiscal

- This argues that inflation can be part of an optimal fiscal consolidation plan
Conventional Consolidations

- Suppose govt wants to permanently reduce debt-GDP
- To achieve long-run reduction in debt...
  - move from current deficits to surpluses
  - overshoot long-run surplus target to retire debt
  - converge to long-run debt target “from above”
- Europe has shown us how this works
  - fiscal austerity reduces GDP & employment
  - automatically raises some kinds of government spending & reduces revenues
  - makes achieving debt goal hard—impossible?
Paths of Primary Surplus & Debt: Debt-GDP from 80% to 60%
Surpluses Must *Overshoot* Long-Run Target
Hypothetical Conventional Consolidation

- Adjustments can take *decades*
- How does a government credibly commit to such long-run adjustments?
- Conventional consolidations treat debt as real
  - backed *only* by primary surpluses
  - MP targets inflation, so no role for fiscal cushion

**Monetary Heresy:** Should inflation be on the fiscal consolidation menu?
- it may be unappetizing to central bankers
- but we’ve seen that conventional consolidations are also distasteful & hard to digest
Alternative Fiscal Consolidations

▸ What can inflation do?
  ▸ government debt is nominal & long-term
  ▸ current or future inflation devalues debt
  ▸ can avoid overshooting surplus target
  ▸ requires less fiscal adjustment
  ▸ may reach debt goal faster

▸ Also…
  ▸ if monetary policy prevents nominal rates from rising with inflation—as it has the past 4 years
  ▸ then real interest rates fall
  ▸ stimulates consumption & aggregate demand

▸ Alternative consolidation may avoid retarding growth
Hypothetical Alternative Consolidation

Paths of Primary Surplus & Debt: Debt-GDP from 80% to 60%
No Overshooting of Surpluses
Illustrative Model

- Simple model: constant output & real interest rate
- Imposing equilibrium yields bond valuation equation

\[
\frac{Q_t B_{t-1}}{P_t} = \sum_{j=0}^{\infty} \beta^j E_t s_{t+j}
\]

(VE)

- In conventional consolidation...
  - MP unconstrained: determines equilibrium \( \{P_t, Q_t\} \)
  - FP constrained: chooses \( \{s_t\} \) to satisfy (VE)

- In the alternative consolidation...
  - FP unconstrained: determines equilibrium \( \{P_t, Q_t\} \)
  - MP constrained: determines mix between \( P_t \) & \( Q_t \)
**Alternative Consolidations**

- FP sets \( \{s_t\} \) exogenously—indeoendently of debt
- MP sets \( \{R_t\} \) to react weakly to inflation

\[
\frac{Q_t B_{t-1}}{P_t} = \sum_{j=0}^{\infty} \beta^j E_t s_{t+j} \tag{VE}
\]

- Right-side given & \( B_{t-1} \) predetermined
- (VE) determines feasible \((P_t, Q_t)\) combinations
- Can think of expected present value of surpluses as determining the expected present value of inflation
  - longer maturity permits inflation to be postponed
- By choosing path of short rates, MP chooses *timing* of inflation
Alternative Consolidations

- Tradeoff between current & future inflation

\[ \frac{Q_t B_{t-1}}{P_t} = \sum_{j=0}^{\infty} \beta^j E_t s_{t+j} \quad (\text{VE}) \]

- With constant future inflation, \( \pi^F \)

\[ Q_t = \frac{\beta}{\pi^F - \rho \beta} \]

\[ \frac{\pi^F}{\pi_t (\pi^F - \rho \beta)} = \frac{E_t PV(s)}{B_{t-1}/P_{t-1}} \]

- Consolidation reduces \( E_t PV(s) \), given initial debt-GDP

- Only short debt, \( \rho = 0 \) \( \Rightarrow \) no change in future inflation
Putting Numbers on the Experiment

- Take path of \( \{s_t\} \) for 2012–2022 from Congressional Budget Office “Budget Projections,” March 2012
  - conventional consolidation: \( s_t \) for 2023 & 2024 increases by 1% each year; passive fiscal adjustment thereafter
  - alternative consolidation: \( s_t \) has same short-run path, but reaches long-run target early

- Debt-output
  - initial: 80%
  - target: 60%

- Model calibration
  1. real interest rate 2%
  2. inflation target 2%
  3. vary average maturity
## Alternative Consolidations

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<th>Maturity</th>
<th>Current Inflation ($\pi_t$)</th>
<th>Future Inflation ($\pi^F$)</th>
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<tr>
<td></td>
<td>2%</td>
<td>4%</td>
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<tr>
<td>Average</td>
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Feasible Current Inflation ($\pi_t$) and Future Inflation ($\pi^F$) Combinations & Average Debt Maturity (Annual %)
Alternative Consolidations

- An illustrative model
  - too simple, not carefully matched to data
  - numbers not to be taken seriously—just show tradeoffs between current & future inflation
  - not intended to predict effects of alternative consolidation
  - need welfare comparisons of conventional vs. alternative
- Longer average maturity, more can smooth inflation over time
  - can avoid high & volatile inflation
- Requires a particular monetary policy
- With long maturities, a little inflation goes a long way
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. Sovereign debt in Euro Area is real debt
   ▶ cannot use surprise inflation as fiscal cushion
   ▶ potential role for nominal Eurobonds w/ appropriate maturity

3. Inflation may be part of an optimal fiscal consolidation

4. Fiscal backing essential to well-functioning & successful monetary policy