

Discussion on "Exorbitant Privilege Gained
and Lost: Fiscal Implications" by Z. Chen, Z
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ABFER, Singapore May 2024

Summary

- Relate safe asset supplier to fiscal capacity.
- Modern fiscal-finance approach to a key question in international macroeconomics: build upon previous research work.
- Approach combines convenience yield approach (safe asset perspective) to fiscal capacity/backing to assess durability of reserve currency.
- Rich paper:
 - ▶ Theoretical framework;
 - ▶ Data analysis and collection.
 - ▶ Quantitative analysis
 - ▶ Historical perspective.

Discussion

- Fiscal capacity and convenience yield approach.
- Empirical Implication.
- Other open questions.

Background

- What defines a safe asset?
 - ▶ Key message: measure of fiscal backing taking into account convenience yield determines debt exposure. Exceeding this measure leads to loss of safe asset status. (Steady-state perspective)

$$D_0 = \underbrace{\frac{P_0^T - P_0^G}{Y_0}}_{\text{primary surplus}} + \underbrace{\frac{P_0^K}{Y_0}}_{\text{Convenience yield}} = \tau_0 p d_0^T - g_0 p d_0^G + k_0 p d_0^K$$

- What is fiscal backing and what is fiscal capacity?

Fiscal Capacity

- Fiscal Budget Constraint:

$$B_t^G = T_t - G_t + T_t^{CB} + B_{t-1}^G (1 + i_{t-1})$$

with T_t^{CB} transfer from the Central Bank. In case of a solvency constraint at the level of the Treasury (fiscal authority)

$$\frac{B_{t-1}^G}{P_t} (1 + i_{t-1}) = \sum_{j=0}^{\infty} R_{t,t+j} (T_{t+j} - G_{t+j} + T_{t+j}^{CB})$$

- Central Bank Budget Constraint:

$$B_t^{CB} - R_t = B_{t-1}^{CB} (1 + i_{t-1}) - R_{t-1} (1 + i_{t-1}^R) - T_t^{CB}$$

with R_t reserves issued by the Central Bank. Central Bank is always solvent. Central Banks liabilities define the currency and they are claims to themselves.

- In this simple background model, private agents will be holding Central Banks' reserves and derive utility from holding them (convenience yield) and are subject to intertemporal budget constraint. Also issuing other risk-free assets with return i_A .

Fiscal Capacity and Backing

- Consider the case in which Central Bank backs the Treasury. In this case the solvency property of the central bank extend to the liabilities of the Treasury. B_t^G becomes like R_t . Outstanding stock of government debt and reserves are paid with certainty (nominally) no matter what government resources are.
- Consolidated budget constraint:

$$B_t^G - B_t^{CB} + R_t = T_t - G_t + B_{t-1}^G (1 + i_{t-1}) - B_{t-1}^{BC} (1 + i_{t-1}) + R_t(1 + i_{t-1}^R)$$

- Still economy is subject to intertemporal resource constraint (coming from intertemporal budget constraint from private sector). Intertemporal resource constraint is discounted using $1 + i^A$.
- We can rewrite intertemporal budget constraint as:

$$\frac{(1 + i_{t-1}^R)}{\Pi_t} b_{t-1} = E_t \sum_{T=t}^{\infty} \beta^{T-t} \frac{U_c(Y_T)}{U_c(Y_t)} \left[\underbrace{(T_T - G_T)}_{\text{primary surplus}} + \underbrace{\frac{i_T^A - i_T^R}{1 + i_T^A} b_T}_{\text{seignorage}} \right],$$

with $(b_{t-1}^S - b_t^{CB} + r_t) = b_{t-1}$ denoting the outstanding liabilities of the consolidated government sector.

Fiscal Capacity and Backing

- Previous condition is equilibrium condition that would hold when Central Bank backs Treasury and when reserves provides liquidity services (convenience yield). Indeed

$$\left(1 - \frac{1 + i_t^R}{1 + i_t^A}\right) = \frac{V_R(r_t)}{U_c(Y_t)}$$

- Government can choose quantity of reserves and interest rate on reserves (like in current times). This is a joint monetary and fiscal policy problem. (in principle convenience changes across policy regimes).
- What is i_t^A ?

$$\frac{1}{1 + i_t^A} = \beta E_t \left(\frac{U_c(Y_{t+1})}{U_c(Y_t)} \frac{1}{\Pi_{t+1}} \right)$$

with Π_{t+1} being gross inflation. In steady state

$$\frac{1}{1 + i^A} = \beta \frac{1}{\Pi}$$

- Note this framework is closed economy.

Fiscal Capacity and Backing

Implications

- When CB backs Treasury and all Treasury liabilities share the same properties as reserves then convenience yield is set by the Central Bank (clearly from steady state analysis).
- In general equilibrium, quantity and prices will adjust to satisfy intertemporal resource constraint of the economy. To the extent to which there is backing then the previous equation should hold.
- When there is no backing then the Treasury is subject to the solvency condition. There is still a convenience yield gain to the extent to which government bond do provide non-pecuniary benefits.

Fiscal Capacity and Backing

Empirical Analysis

- Underlying framework is relevant for empirical analysis: in one case equilibrium condition does not require adjustment in terms of fiscal policy to satisfy solvency condition.
- Empirical analysis
 - ▶ major effort in terms of data collection and measurement.
 - ▶ measurement across few centuries (Dutch experience, British empire and more recent period)

Empirical Analysis

Empirical Analysis

- Two remarks.
 - ▶ Measurement: general equilibrium perspective.
 - ▶ Different regimes: gold standard and Bretton Woods.

Empirical Analysis

Empirical Analysis: Measurement

- Convenience yield: deviation from covered interest rate parity. These deviations are measured conditional on available government instrument across different time periods and regimes. Not easy task.
 - ▶ UK case: Gold standard from 1873 to 1914 and from 1925 to 1931, CIP deviations between government bonds at short and long maturities.
 - ▶ Different periods with different degree of financial integration. First period of financial integration pre WW1 (gold standard and capital mobility). After WW1 period of instability before Great Depression? What do deviations from CIP capture even within Gold Standard?
- General equilibrium perspective:
 - ▶ In the empirical part this component is kept constant but it does depend on policy choice along with preferences.
 - ▶ In principle to the extent to which there is full backing equilibrium relationship could be used to back implicit convenience yield.

Empirical Analysis

Empirical Analysis:

- Gold Standard and Bretton Woods: UK and US dominant currencies respectively.
- In both cases pegging to gold breaks the fiscal backing story. Like having foreign currency liability.
- Triffin (1961) can be recasted as a situation in which government liability are not backed leading to the collapse of Bretton Woods. (see also Krugman (1978)).

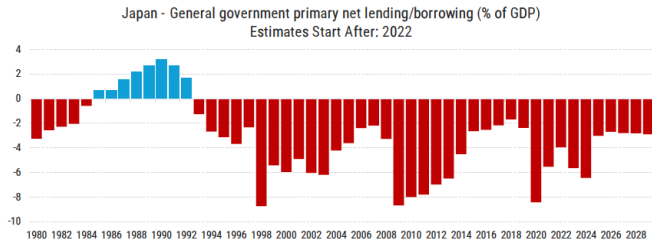
General remarks

Other issues:

- What happens if you don't meet fiscal capacity constraint and you are not a reserve currency?
- Is fiscal capacity the common link in determining transition between dominant currencies?

Japan

Primary Fiscal Deficit (% of GDP)

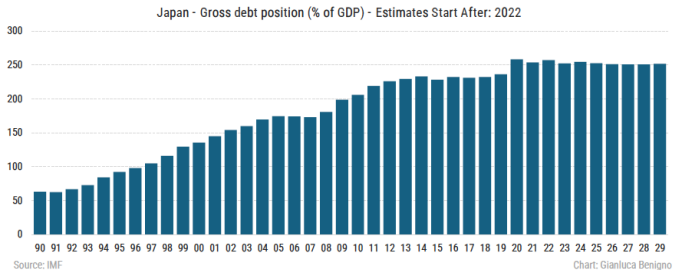


Source: IMF

Chart: Gianluca Benigno

Japan

Government bonds (debt)



General remarks

Japan

- Persistent primary deficit;

$$D_0 = \tau_0 p d_0^T - g_0 p d_0^G = (\tau_0 - g_0) p d_0^Y$$

- Note D_0 held by private sector.(BOJ held 50% of JGB)
- Is there fiscal backing?

General remarks

Other issues:

- Is fiscal capacity the common link in determining transition between dominant currencies?
 - ▶ Liquidity and depth of financial market (private liquidity).
 - ▶ Military and economic powers consideration.

Conclusions

- Fascinating work on dominant currency and fiscal dimension as a driver of dominant position in international monetary system.
- Finance approach +convenience yield. I emphasize the potential importance of macro-policy dimension in the accounting exercise.
- Overall great paper to read and learn from.