Comment on “Federal Government Debt and Interest Rates”

Darrel Cohen

Federal Reserve Board

Logic of Paper

- Based on analytic arguments, EH show that the real interest rate rises only a very small amount with increases in govt. debt, even if govt. debt crowds out real capital dollar for dollar.

  --- A 1 pp increase in the debt-GDP ratio, or about a $100 billion increase in debt, raises interest rates only 2 – 3 basis points.

- Consistent with this, the econometric results show little effect of debt on interest rates

My Comments

- Understanding the EH analytic results
- Issues with empirical results
- Implications

Understanding the analytics

- Over a long period of time in the United States, capital income has been about 1/3 of GDP

- $rK/Y = 1/3$ or

  $r = (1/3)(Y/K)$

- If capital is paid its marginal product, then $r = MPK = (1/3)\,(Y/K)$

- The EH basic argument is that Y/K can't change much when govt. debt changes, and thus r changes by even less than Y/K

- This is a long-run argument.

- Suppose all current federal debt is eliminated so the Debt-GDP ratio goes from 0.4 to 0.

- Suppose that lower debt raises capital point-for-point so that K/Y rises from 3.0 to 3.4. Y/K falls from .33 to .29.

- Thus r falls about 1 percentage point (11% to 10%).

- If D/Y declines by 1 percentage point (40% to 39%), the fall in r is about 1/40 as large or only 2 – 3 basis points.

Empirical Results: Prior Literature

- Huge literature relating interest rates to fiscal variables

- CBO reviews a sample from the literature and shows how reduced forms have found significant negative, zero, and positive impacts of fiscal policy on interest rates.

- The results from the prior “reduced-form” literature are not robust. Sensitive to:

- measurement of fiscal variable
- Lag structure
- Expectations of fiscal variable
- Control for government purchases
- Open economy controls

Hope springs eternal

- Laubach has a clever new insight that is extended by EH

- Real interest rate = a + b*Fiscal variable + c*Other Stuff + ε

-- 10 year Treasury rate, 5 years ahead, real

-- projected: Debt/GDP or Deficit/GDP

Other Stuff

--- GDP growth rate

--- Real oil price

--- Equity premium

--- Defense dummy variable

--- Federal Reserve Treasury holdings

Econometric Results

- EH show Laubach result is not robust by trying different set of RHS variables and estimating much lower values for b.
- This is paper’s main scientific contribution and it is an important one.   But …..

Issues with empirical approach

- official fiscal forecasts more than a year or two into the future generally have been very bad. Do financial markets use them???

- Some of the RHS variables are endogenous:

  --- fiscal variables have cyclical components; deficit depends directly on interest rates; policy reaction function; real GDP growth rate depends on interest rate

Debt, Deficits, and Models

- EH find a relatively small value for b when the fiscal variable is debt/GDP, but much larger value when it is deficit/GDP.
- EH argue that we should ignore deficit results because of a statistical argument and because using "debt instead of the deficit is a specification consistent with a standard economic model."

- Arithmetic of long-run deficit dynamics:

Debt/GDP = (1/GDP growth rate)*Deficit/GDP

Thus, a permanent 1 pp increase in the deficit ratio has a much larger impact than a 1 pp increase in the debt ratio.

- There are many models where stocks or flows (or both) can affect the level of rates.

Implications --- #1

- EH find that Laubach’s results are not robust; indeed, they find a much smaller effect of fiscal policy on interest rates.
- By the same reasoning, Laubach’s results show that the EH results are not robust (he uses a different set of RHS variables).
- As noted, the rest of the literature shows that results are not robust.
- I conclude that “reduced-form” approach simply is not going to give a definitive empirical answer.

Implications -- #2

- Take EH result and discussion literally: A large change in debt-GDP ratio has very little effect on interest rates.

  ---   But according to their preferred model, this quantitative result is consistent with a lot of crowding out. In this sense, deficits/debt matter and have a sizable undesirable impact on sustainable per capita consumption.

Implications --- #3

- If EH model is not best one for short-run or intermediate-run analysis, then we need to turn to other models to explain their quantitative result.

- If U.S. is a small open economy from the perspective of world capital markets, then U.S. fiscal policy has small effects on interest rates and no crowding out because of foreign capital inflows.

- But these inflows imply a change in ownership of U.S. real capital and hence a reduction in U.S. capital income over time.

- If interest rates are determined on world capital market and if goods prices are sticky in the short run, then tax cuts cannot boost output by themselves without violating money market equilibrium [$M/P = L(i, Y)$].