

A History of U.S. Debt Limits

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Next Steps for the Fiscal Theory of the Price Level

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The Government Budget Constraint

$$\frac{B_{t-1}}{p_t} = E_t \sum_{j=0}^{\infty} (m_{t,t+j} \sigma_{t+j}^t)$$

where

- ▶ $\frac{B_{t-1}}{p_t}$ is the value of the debt
- ▶ $m_{t,t+j}$ is a stochastic discount factor
- ▶ σ_{t+j}^t is the primary government surplus

QUESTION: Under a debt ceiling, what is the object that being limited?

Government Accounting and Macroeconomic Theory

Two conceptual differences

1. Treasury measures the debt at the par or face value; in our models, B_{t-1} is the market value of the debt
2. Treasury records its interest payments by summing up coupon payments and the discount on T-bills; in our models, the return to creditors is the holding period of the debt

The Government Budget Constraint

- ▶ The one-period gross nominal return on a j -period zero coupon bond

$$\left(\frac{q_{t+j-1}^t}{q_{t+j-1}^{t-1}} \right) = (1 + r_{t-1,t}^j) \quad \text{where} \quad q_{t+j}^t = \frac{1}{(1 + \rho_{jt})^j}$$

- ▶ $b_{t+j}^t \sim$ par or principal
- ▶ $c_{t+j}^t \sim$ coupon
- ▶ $\sigma_{t+j}^t = T_{t+j}^t - G_{t+j}^t \sim$ primary surplus

Then the government budget constraint is

value of government debt = P.V. of future surpluses

$$\sum_{j=0}^{\infty} q_{t+j}^t (c_{t+j}^t + b_{t+j}^t) = \sum_{j=0}^{\infty} q_{t+j}^t \sigma_{t+j}^t$$

Two measures of government debt

U.S. government accounts:

$$\sum_{j=1}^{n_t} b_{t+j}^t \quad (1)$$

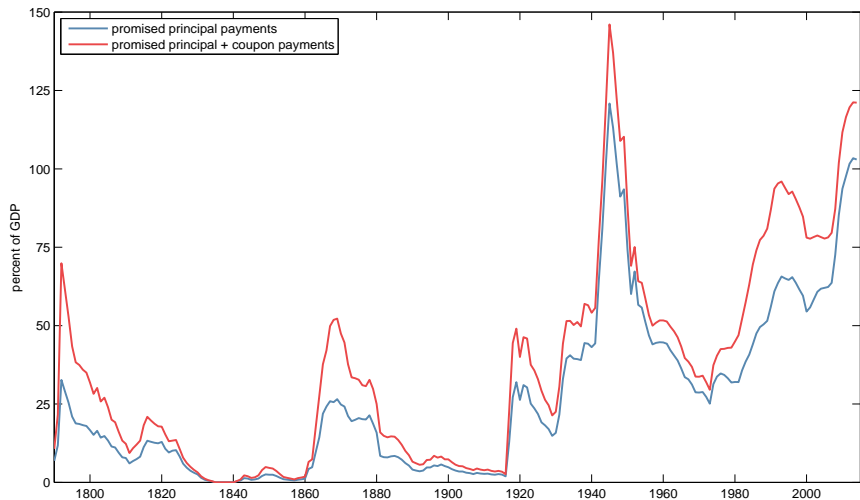
Macroeconomics:

$$\sum_{j=1}^{n_t} q_{t+j}^t (b_{t+j}^t + c_{t+j}^t) \quad (2)$$

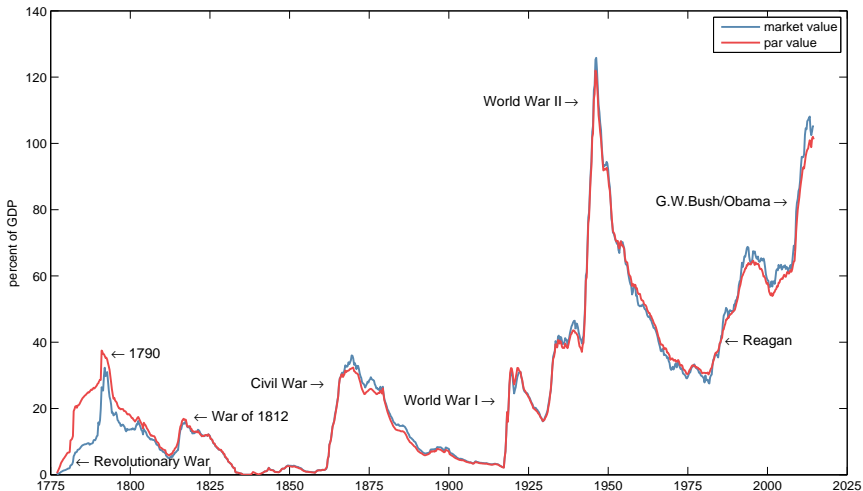
The debt limit is an upper bound on (1), not on (2).

- ▶ Promises labeled “principal” are recorded as debt and count against the limit
- ▶ Promises labeled “coupons” or “interest” do not.

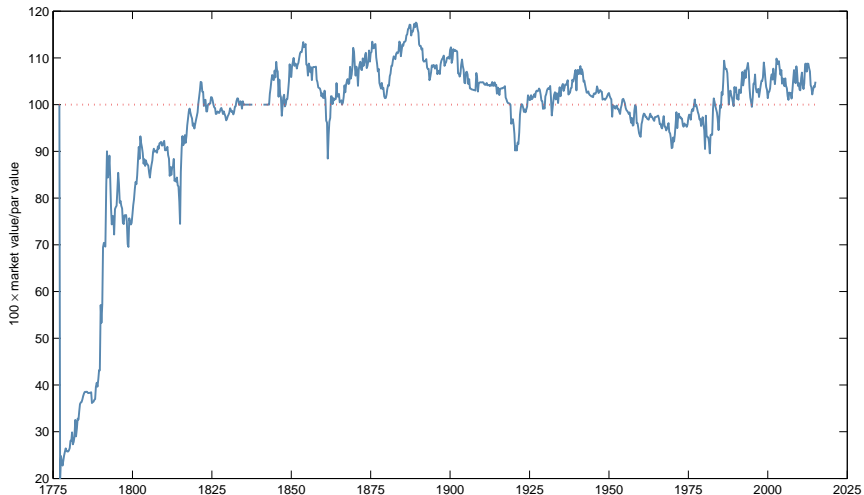
Promised Principal and Coupon Payments



Debt to GDP Ratio, Market and Par Value, 1776-2014



Ratio of Market Value to Par Value of Debt



Two measures of “interest payments”

US government accounts:

before 1929:

$$c_t^{t-1}$$

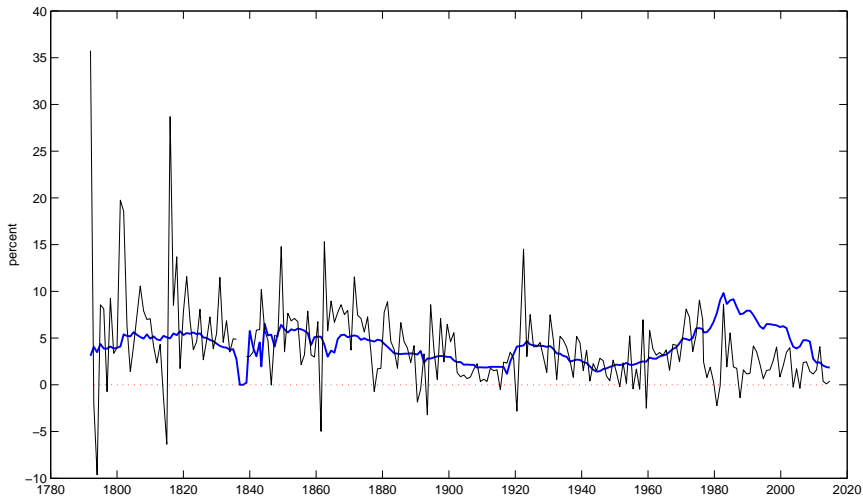
after 1929:

$$c_t^{t-1} + r_{t-1,t}^1 b_{1,t}^{t-1}$$

Macroeconomics:

$$\sum_{j=1}^{n_{t-1}} r_{t-1,t}^j q_{t+j-1}^{t-1} (b_{t+j-1}^{t-1} + c_{t+j-1}^{t-1})$$

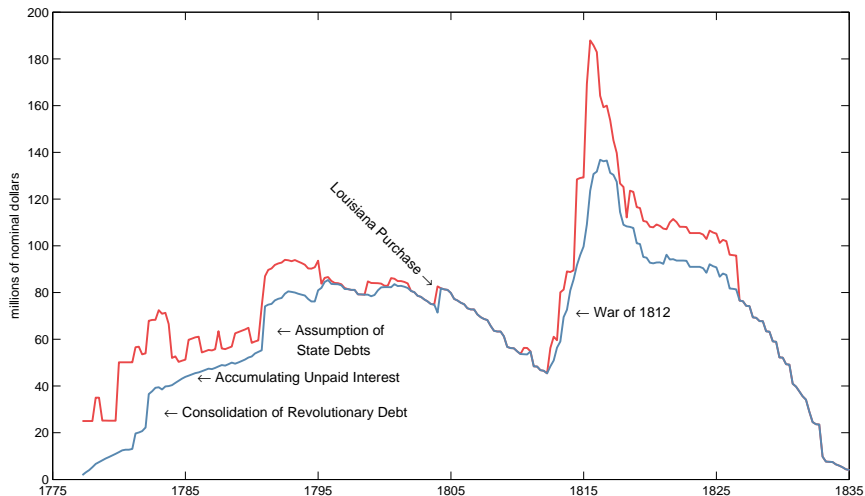
Nominal Holding Period Return and Official Net Interest Payments as Percent of the Debt, Annual by Fiscal Year



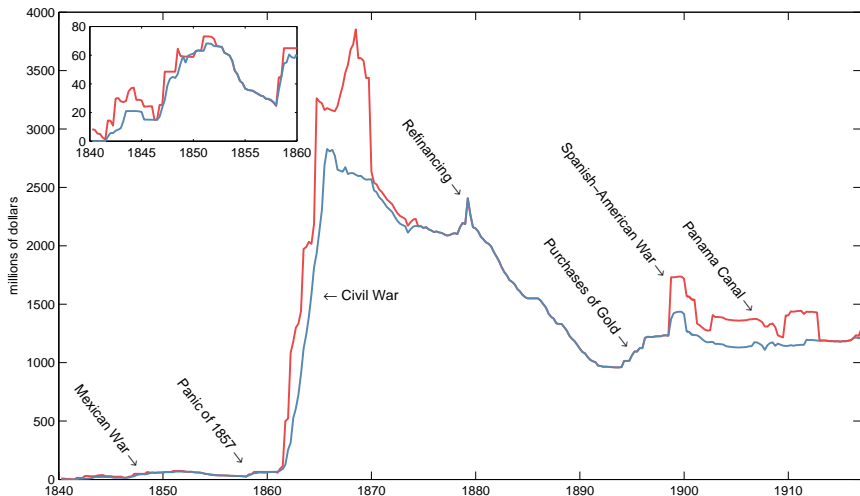
Limit or Limits?

- ▶ Congress has imposed an aggregate limit only since 1939
- ▶ Before WWI, Congress imposed limits on each bond
 - ▶ For most securities, Congress limited quantities to be *issued*
 - ▶ Limits were not on quantities *outstanding*
 - ▶ After a security was redeemed, it could not be re-issued
 - ▶ Restricted the projects on which proceeds could be spent
- ▶ We construct implied limits on aggregate limit by keeping track of unexpired limits on each individual security

Total Debt and the Limit: Nominal, 1776-1835



Total Debt and the Limit: Nominal, 1840-1916



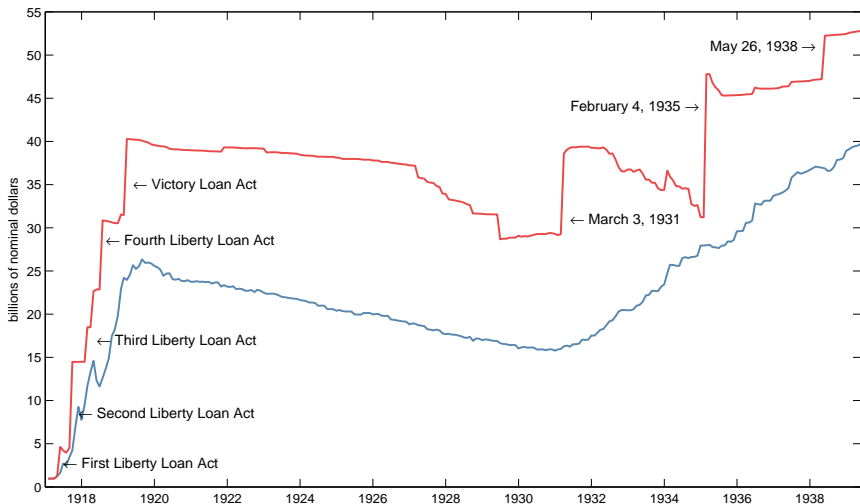
Second Liberty Bond Act of 1917

Granted the Secretary of the Treasury authority

to borrow from time to time, on the credit of the United States for the purposes of this Act, and to meet expenditures authorized for the national security and defense and other public purposes authorized by law not to exceed \$7,538,945,460

This broad language broke the tight connection between borrowing and spending for specific purposes that had characterized Congress's policy since 1776.

Total Debt and the Limit: Nominal, 1917-1939



Total Debt and the Limit: Nominal, 1939-2014

