

# **United States then, Europe now**

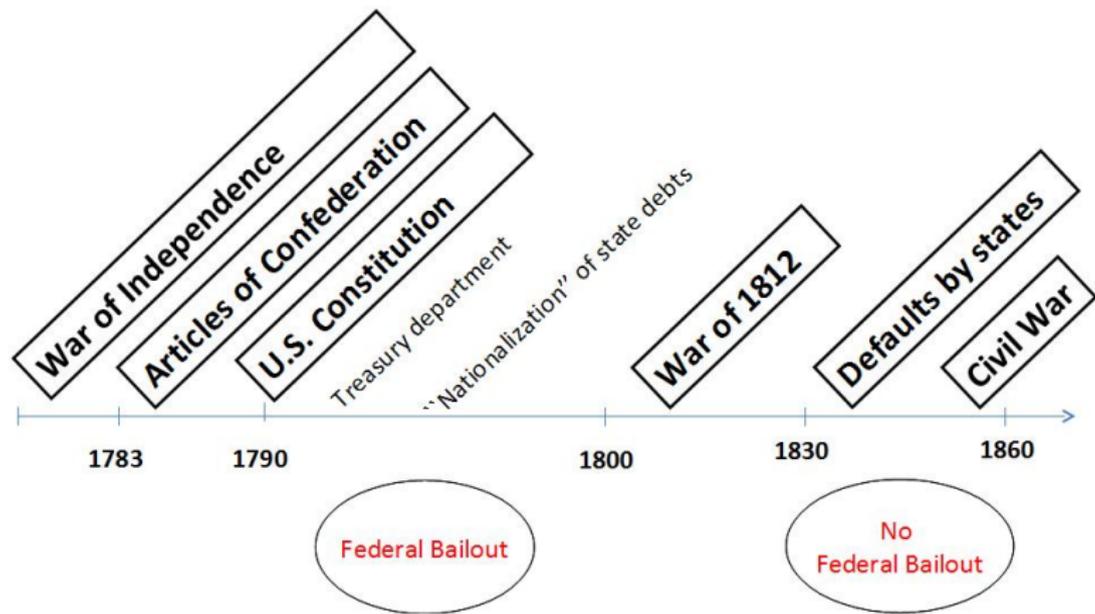
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# Questions

1. Should governments **default** on their debts?
2. Should a central government **bailout** subordinate states?
3. Should a monetary union precede a fiscal union?
4. Should a fiscal union precede a monetary union?

# "United States Then" - Fiscal Timeline



# Outline

- ▶ **Fiscal arithmetic**
- ▶ **Fiscal and monetary choices of U.S.**
- ▶ **The current situations in the U.S. and EU**
- ▶ **Lessons**

# A Simple Model For Government Debt

1. **Statistical Model** for government surplus net-of interest  $s_t$

$$s_t = \sum_{j=0}^{\infty} \sigma_j w_{t-j} = \sigma(L)w_t$$

2. **Government budget constraint**

$$b_t = \underbrace{T_t - g_t}_{s_t} + R^{-1}b_{t+1}, t \geq 0$$

Iterating backward

$$b_t = - \sum_{j=0}^{t-1} R^{j+1} s_{t+j-1} + R^t b_0$$

Iterating forward

$$b_t = \sum_{j=0}^{\infty} R^{-j} E_{t-1} s_{t+j}$$

# Cross-equation Restrictions

## 1. Rational Expectations :

$$b_t = \kappa(L)w_t, \quad s_t = \sigma(L)w_t$$

where

$$\kappa(z) = \frac{z\sigma(z) - R^{-1}\sigma(R^{-1})}{z - R^{-1}} \quad (1)$$

## 2. Measurability :

$$\sigma(R^{-1}) = 0 \quad (2)$$

## 3. No arbitrage :

$$R^{-1} = \tilde{R}^{-1}[(1 - \pi) + \pi(1 - \phi)] \quad (3)$$

Where  $\tilde{R}$  is the risk-free rate,  $\pi$  is the probability of default and  $\phi$  is the haircut

# Economic Theory

1. What determines  $s_t$ ?
2. Economic Model
  - ▶ Environment
    - ▶ Agents
    - ▶ Actions
    - ▶ Information flows
    - ▶ Timing protocols
  - ▶ Optimizing behavior
  - ▶ Equilibrium

# Economic Theory and Outcomes

Environment + Behavior + Eqb = Prob. Dist. Over Outcomes

# Economic Theory and Outcomes

Economic Model



Environment + Behavior + Eqb

= Prob. Dist. Over Outcomes

# Economic Theory and Outcomes

Economic Model

Environment + Behavior + Eqb

= Prob. Dist. Over Outcomes

- Government, Voters, Creditors
- Fiscal and Monetary Policies, Voting and Portfolio Choices
- Political Institutions (Constitutions)

$\{s_t\}$  , R

# 1781-1787 : U.S. After War of Independence

## Environment

- Articles of Confederation
- Weak Continental Congress
- High debt from war
- Uncoordinated trade/fiscal policies

## Outcomes

- Deep discounts on IOU's
- 14  $\{s_t\}$

# 1790's : The U.S. Constitution

## **“New” Environment**

- The U.S. Constitution
- Federal bailout of states
- Consolidation of trade/fiscal policies
- Exclusivity to tax

## **Outcomes**

- No discounts on IOU's
- Increased liquidity
- Large federal tax revenue

Monetary arrangements as an afterthought.

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**Reputation with creditors vs. reputation with states**

## 1840's: Fiscal Crisis

- ▶ What kind of fiscal union?
  - ▶ Expenditure
  - ▶ Bond-issuance
  - ▶ Taxation
- ▶ Eleventh Amendment and Congress's refusal to bail out states
- ▶ Rewritten state constitutions with balanced budget provisions

## U.S. then

- ▶ Deep discounts on bonds
- ▶ Uncoordinated fiscal policies
  
- ▶ “Messy” monetary arrangements
- ▶ Large federal debt

## EU now

- ▶ Deep and varied discounts on member state bonds
- ▶ Uncoordinated fiscal policies
  
- ▶ Centralized monetary arrangements
- ▶ No “federal” debt

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