

Debt and Inflation

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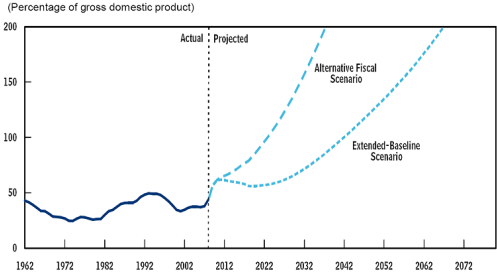
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CBO US Debt Forecast



Federal Debt Held by the Public Under CBO's Long-Term Budget Scenarios



$$MV = PY$$

How is 100% Debt/GDP sustainable?

$$(r - g) \frac{D}{Y} = \frac{S}{Y}$$

$$(\text{interest} - \text{growth rate}) \times \frac{\text{Debt}}{\text{GDP}} = \frac{\text{Surplus}}{\text{GDP}}$$

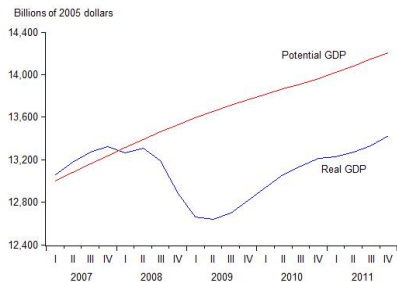
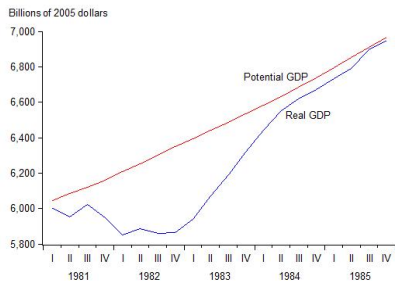
$$\text{Was} : (5\% - 4\%) \times 100\% = 1\%$$

$$\text{US,UK} : (1\% - 0\%) \times 100\% = 1\%.(-10\%?)$$

$$\text{Next?} : (5\% - 0\%) \times 100\% = 5\%?(-10\%?)$$

Answer: Growth

Output in the 1980s and now



Source: John Taylor

What will it look like?

- ▶ Debt is the present value of future surpluses

$$\frac{D_t}{P_t} = E_t \sum_{j=0}^{\infty} \frac{1}{R^j} S_{t+j}$$

$$\frac{\text{Debt}}{\text{Price Level}} = \text{Expected Discounted Future Surpluses}$$

- ▶ Bad news about the future leads to inflation or default today.

Policy Options

- ▶ Where do surpluses come from

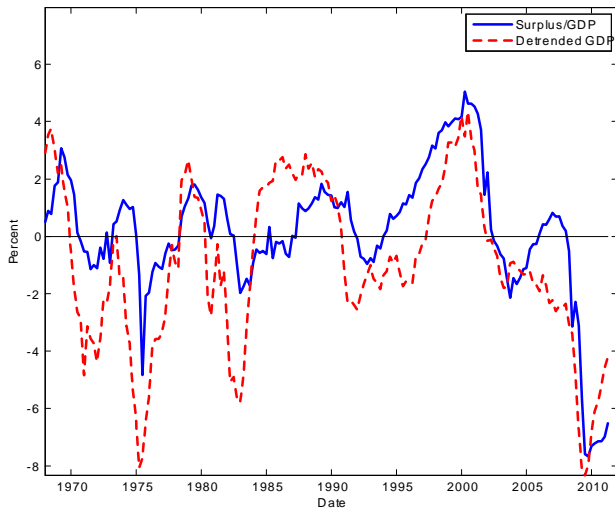
$$\frac{D_t}{P_t} = E_t \sum_{j=0}^{\infty} \frac{1}{R^j} S_{t+j} = E_t \sum_{j=0}^{\infty} \frac{1}{R^j} [\tau (1+g)^j Y_t - G_{t+j}]$$

$\frac{\text{Debt}}{\text{Price Level}} = \text{Expected Discounted Future Surpluses}$

$\text{Surplus}_{t+j} = (\text{tax rate} \times \text{growth}^j \times \text{GDP} - \text{spending})$

- ▶ What are the options?
 1. Austerity
 2. Stimulus
 3. Growth

Surplus and GDP



Detrended GDP = GDP - last 10 year trend line.