Inflating our troubles away?

Comments on "Inflating away the public debt? An empirical assessment"

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April 22, 2017

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Question

$$\frac{B_{t-1}}{P_t} = E_t \sum_{j=0}^{\infty} \beta^j \frac{u'(c_{t+j})}{u'(c_t)} s_{t+j} = E_t \sum_{j=0}^{\infty} \frac{1}{R_{t,t+j}} s_{t+j}$$

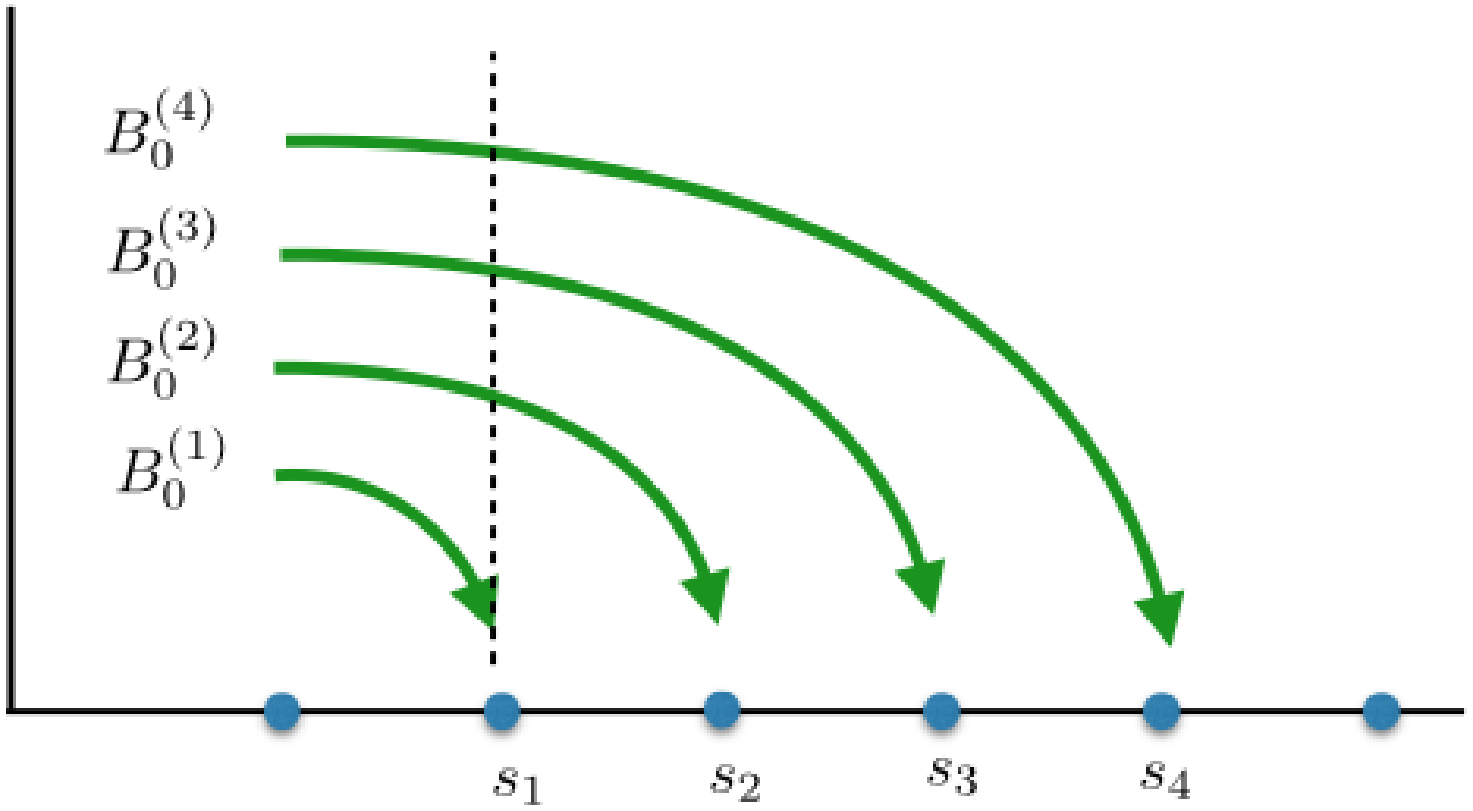
$$\frac{\sum_{j=0}^{\infty} Q_t^{(j)} B_{t-1}^{(j)}}{P_t} = ... = E_t \sum_{j=0}^{\infty} \frac{1}{R_{t,t+j}} s_{t+j}$$

Real value of government debt = present value of real primary surplus.

Long term debt

- Buffers fiscal shocks $\{s_t\}$ to Q, future P.
- Buffers discount rate shocks $\{R_t\}$.
- Allows slow, expected inflation to devalue debt.

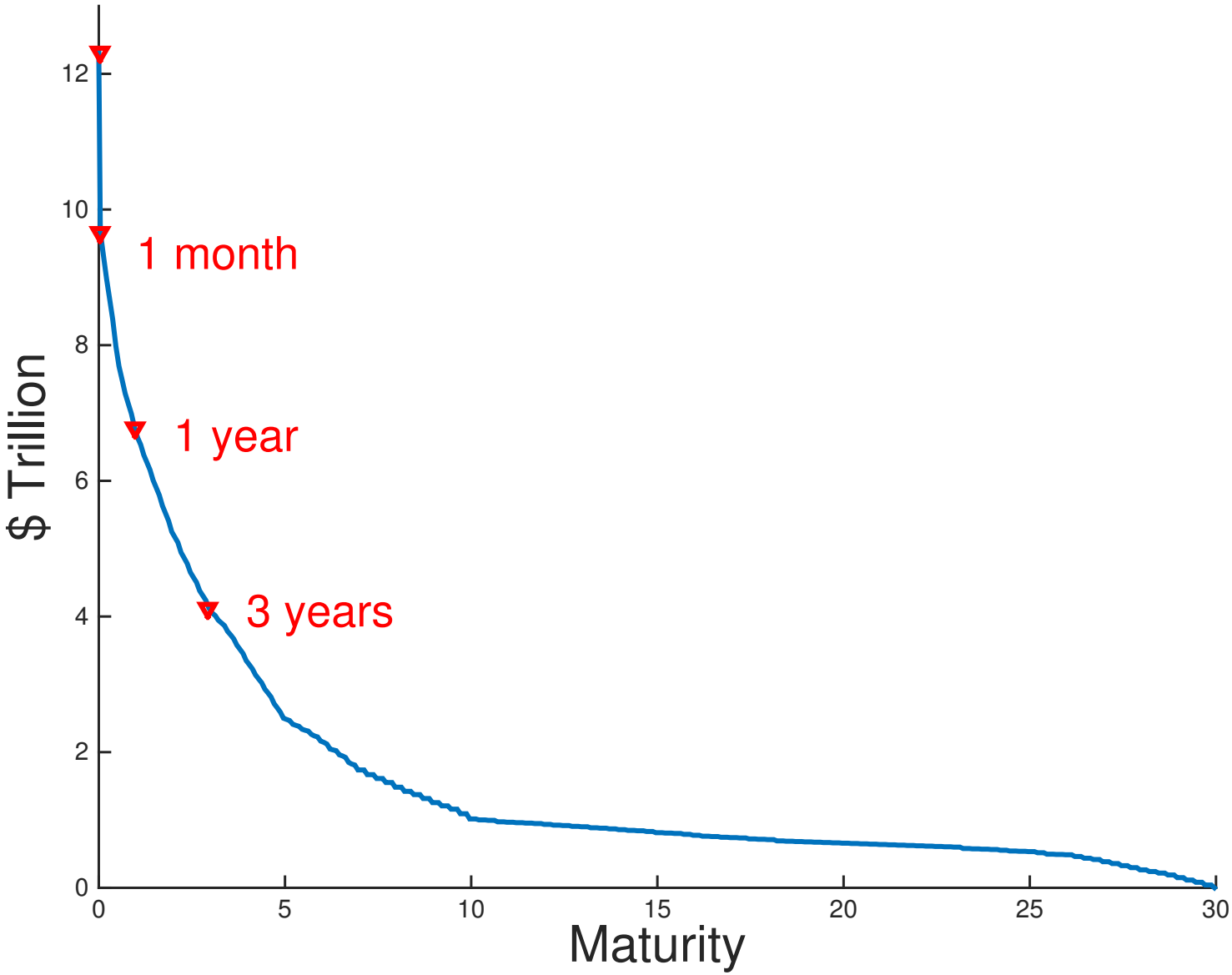
Expected inflation can devalue long-term debt



$$\frac{B_0^{(j)}}{P_j} = s_j$$

- A rise in $E_1 P_{1+j}$ can devalue debt sold before 1, $\rightarrow$ lower s_j.

Federal debt due on or before each maturity in 2012



Inflation and US fiscal problems

"The goal of this paper is to quantify the likelihood of inflation significantly ~~eroding the real value of U.S. debt.~~"
"....significantly improving the US long-term fiscal position."

$$b_t = \frac{B_{t-1}}{P_t} = E_t \sum_{j=0}^{\infty} \frac{1}{R^j} s_{t+j}$$

$$\frac{b}{Y} = \frac{s/Y}{r-g} \quad \rightarrow \quad \frac{s}{Y} = (r-g)\frac{b}{Y}$$

	% of GDP	2017 $
Debt service	$< 0.5\%$ - 1%	\$95b - \$190b
CBO deficits	3% (2017) - 5% (2027)	\$550b - \$950b
Kotlikoff fiscal gap	10.5%	\$2,000b

- Social security, medicare, medicaid, pensions, credit guarantees.
- Inflation sensitivity?

US fiscal problems

$$b_t = E_t \sum_{j=0}^{\infty} \frac{1}{R^j}(\tau Y_{t+j} - G_{t+j})$$

$$b + PV(G) = \frac{\tau Y}{r - g}$$

How does the equation hold?

- Massive cuts in growth rate of G. (Expected?)
- Massive negative returns. (*Future* default, inflation. Unexpected!)
- More g! $r - g$ from 2% to 1% doubles $PV(\tau Y) = PV(G)$!
- More τ? (20% $\rightarrow$ 30% of Y, plus state & local)

$$\frac{d}{d\log\tau}\left(\frac{Y}{r-g}\right) = 1 + \frac{d\log Y}{d\log\tau} + \frac{1}{r-g}\frac{dg}{d\log\tau}$$

"Present value Laffer curve." $1/(r-g) \rightarrow$ *tiny* growth elasticity ruins the present value of tax receipts.

US fiscal dangers...and inflation

$$b_t = E_t \sum_{j=0}^{\infty} \frac{1}{R^j}(\tau Y_{t+j} - G_{t+j})$$

$$b + PV(G) = \frac{\tau Y}{r - g}$$

How does the equation fall apart?

- Less g! $r - g$ from 1% to 2% halves $PV(\tau Y) = PV(G)$!
- More r!

$$\frac{s}{Y} = (r - g)\frac{b}{Y}$$

  - r to 5%, b/Y=1, $s/Y = 5\% GDP = \$1\, Trillion$.
  - "Not so bad r". $r = \delta + \gamma(g - n)$. $\gamma = 1$, lose g benefit.
  - "Bad r". Lose faith in s, credit spread, r with no g, debt crisis.

A message from the paper. (Inflation?)

- Long term debt, rising r raises debt service right away.
- Large inflation does not change surpluses much $\leftrightarrow$ surplus crisis resolved by inflation produces larger inflation.