

How to worry about government debt

Chris Sims

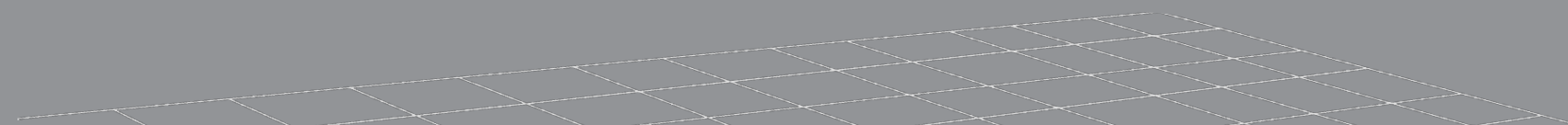
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Coming momentarily

At 12:30 p.m.



Poll Results

1. Will the US debt/GDP ratio reach 200%?
 - a. Never
 - b. Within 10 years
 - c. Within 20 years

2. How will the US reduce its debt/GDP ratio (multiple choice)?
 - a. Economic growth
 - b. Higher future taxes
 - c. Spending cuts

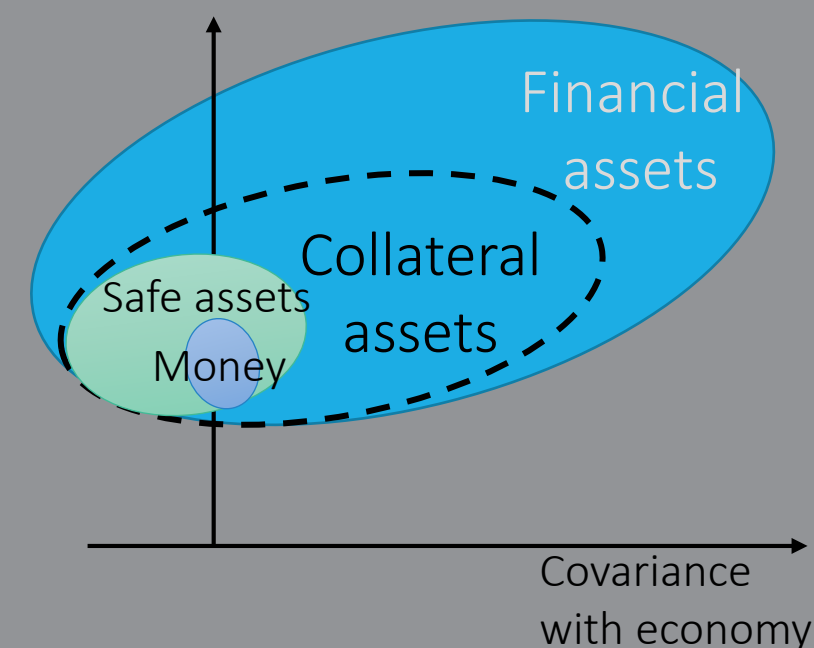
3. How long will the US inflation rate stay below 2%?
 - a. <5 years
 - b. 5-10 years
 - c. 10-20 years

Markus' intro on **Government Debt**

- What really matters is debt servicing cost/interest burden.
- If $r < g$, government debt can be **Ponzi scheme/bubble**
- What r ?

$$r^f = \rho + \gamma g - \frac{1}{2} \gamma (\gamma + 1) \sigma_c^2 - \Delta i$$

- Asset: **cash flow + service flow**
 - σ_c^2 : safe asset feature – insurance in incomplete market setting – retrade to reduce (idiosyncratic) consumption growth rate risk
 - Δi : **medium of exchange feature** – double-coincidence of wants relaxes cash-in-advance constraint, MIU shrinks with FinTech
- Service flow features are “bubbly”, i.e. can burst.



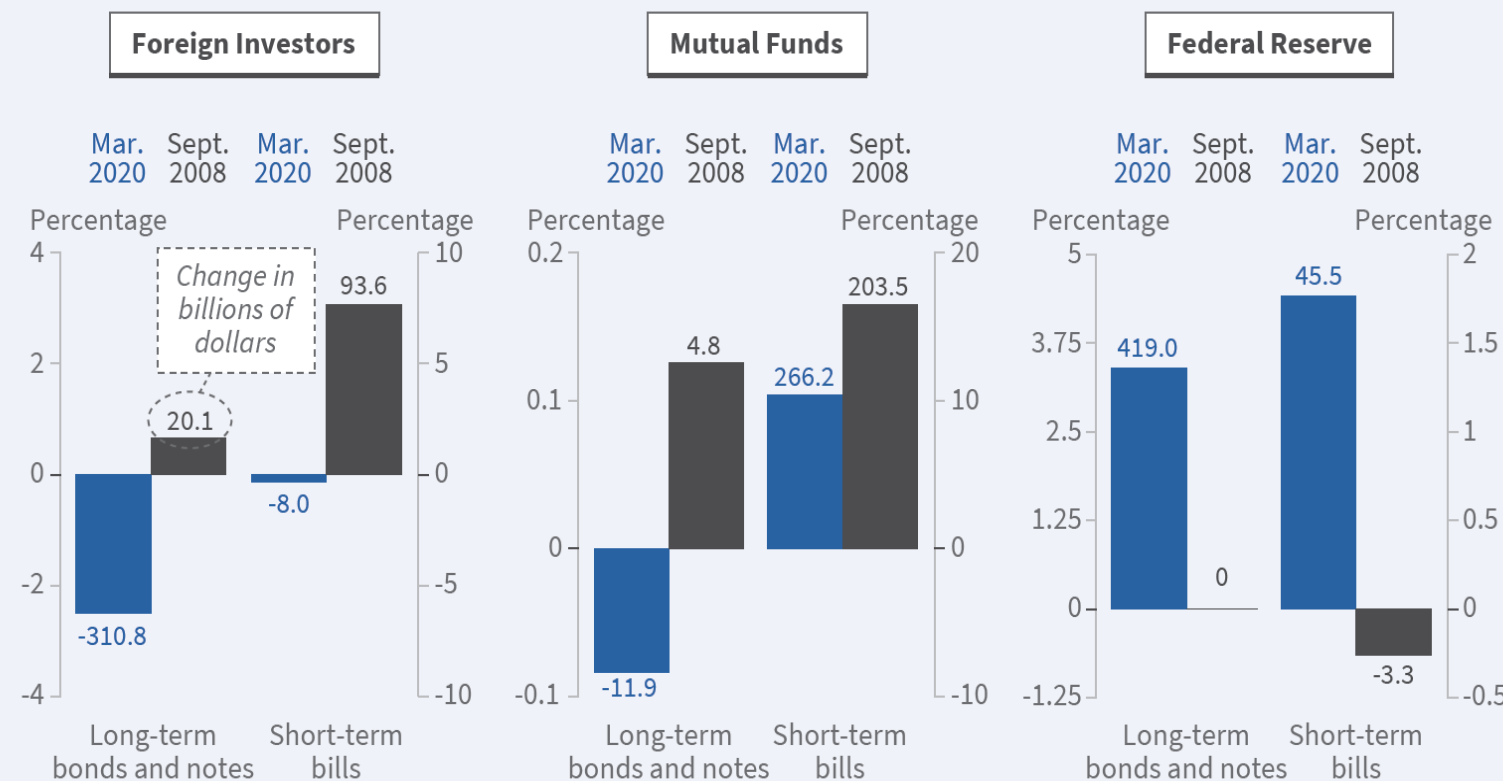
Risk management approach to government debt

- VaR (fiscal debt-servicing costs/GDP | fiscal capacity)
- Danger of bursting bubble? (endogenous risk)
 - Fiscal capacity to back up by raising taxes + Financial sector knock-on effects
 - Flight to safety into what asset? By whom? in March 2020
 - Danger is relative (to other countries debt/GDP)

Risk management approach to government debt

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Change in Treasury Holdings of Foreign Investors, Mutual Funds, and The Fed



Danger is relative

(to other countries debt/GDP)

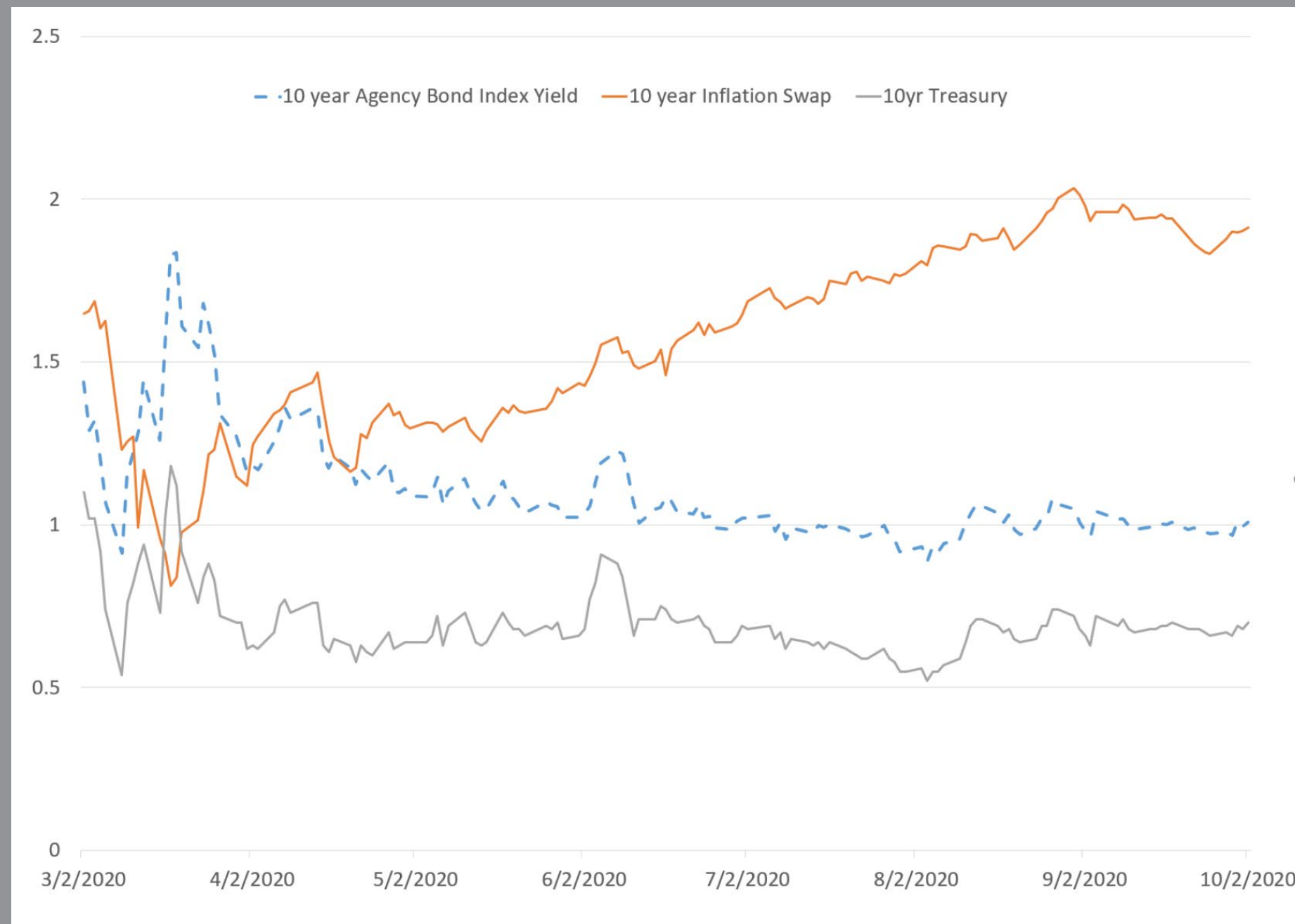
Source:
He, Nagel, Song (2020)

Money vs. Debt

- Is Money = debt?
Two Service flows
 - Store of value (safe asset) like government debt
- Money = special debt?
 - Medium of exchange: Δi lower nominal interest rate
 - Consol bond with floating interest rate
 - Duration (interest rate sensitivity) = 0
 - Maturity = ∞
 - Offers additional service flow
 - In Euro area: joint liability
- What maturity of debt to worry about? Rollover risk
 - Consolidated balance sheet, US: 3.5 years
 - Treasury balance sheet only

Distorted Treasury interest rates

- 10 year real interest rate (Treasury vs. Inflation swaps)



Source:
Arvind Krishnamurthy

- QE purchases: \$120bn a month + going

Narrow Corridor between two traps

- Deflation trap (Liquidity trap)
 - Precautionary savings, flight to safety (due to uncertainty)
 - Policy rate close to Reversal Rate (ELB)
 - Throw everything at it but
 - Side effects dominate
 - Risky to undo later
- Inflation trap
 - High public debt, solvency concern inhibit necessary monetary policy measures
 - Fiscal sector (fiscal dominance) ⇒ threatens independence
 - Financial sector (financial dominance)

- How much debt/money can one issue and gift people
- Ponzi scheme if real money debt < g
- Limit is wealth effect!
- $\rho N_t = \rho \int e^{-(r^f + \text{risk premium} - g)} aK_t = aK_t$
- “The Limits of MMT” with Yuliy Sannikov and Sebastian Merkel (coming soon)

Thank you!

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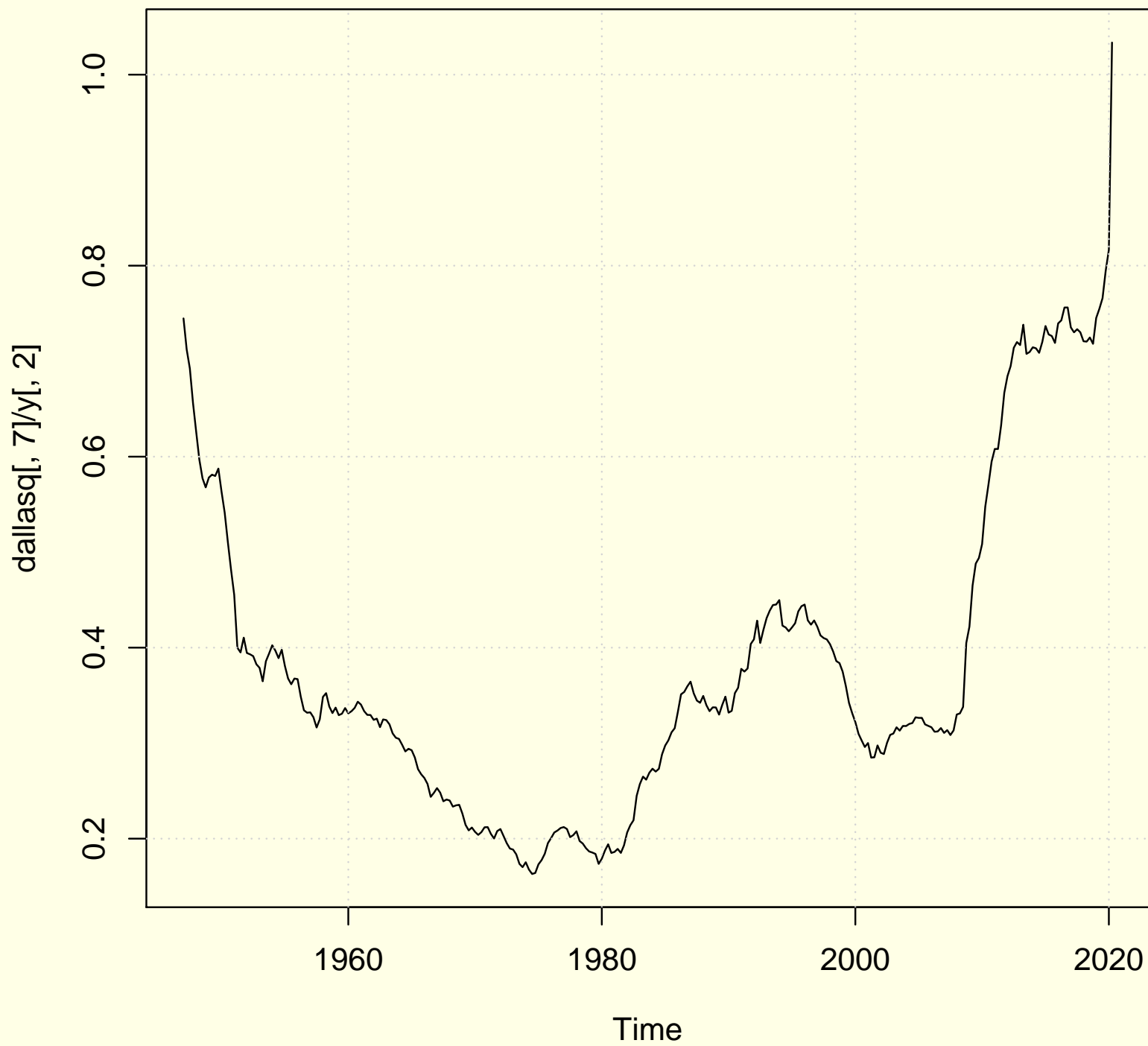
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October 16, 2020

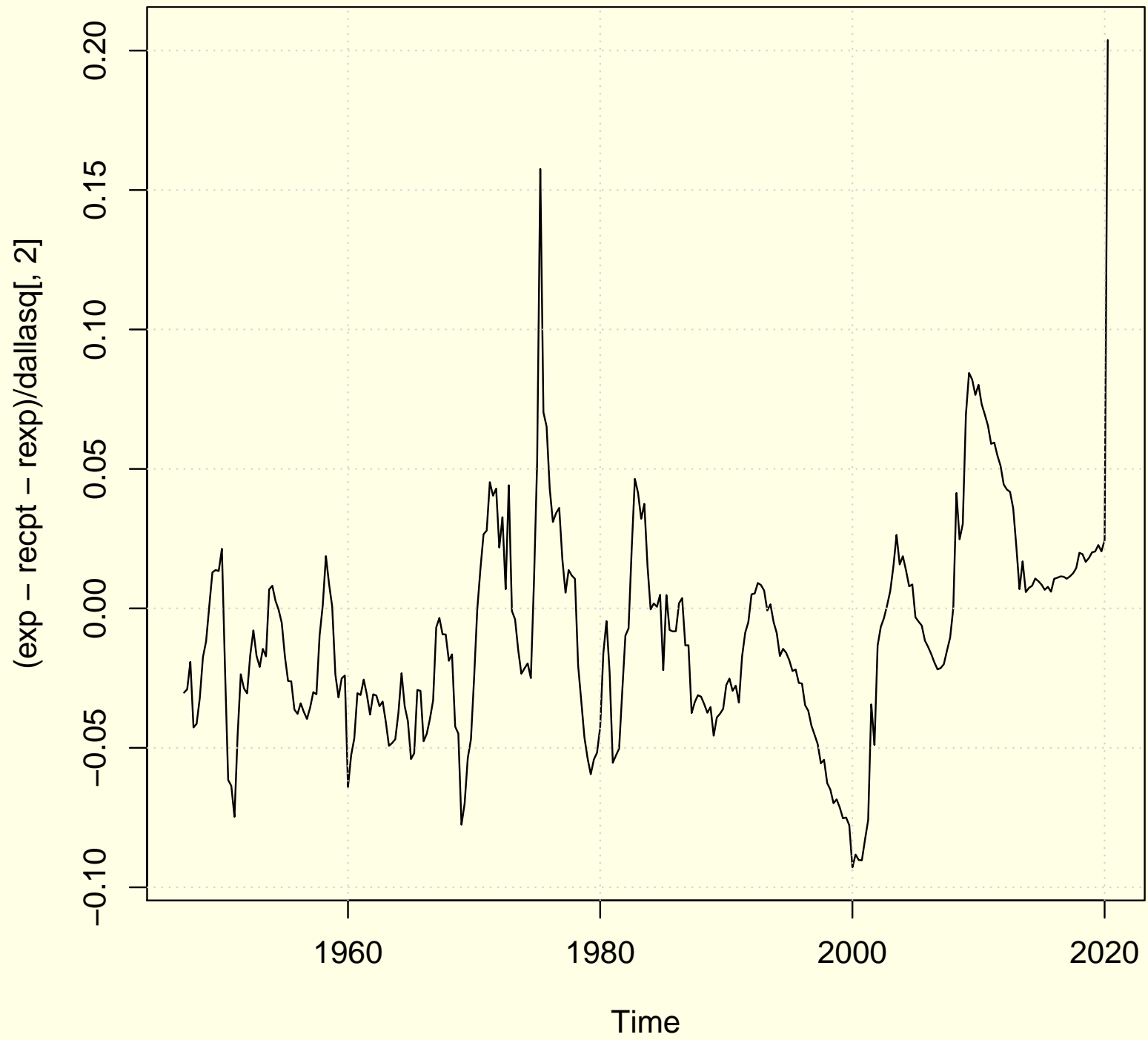
A simple talk

- We'll look at some plots of fiscal ratios.
- We'll do a little arithmetic.
- We'll talk about Japan.
- We'll ponder what is to be done.

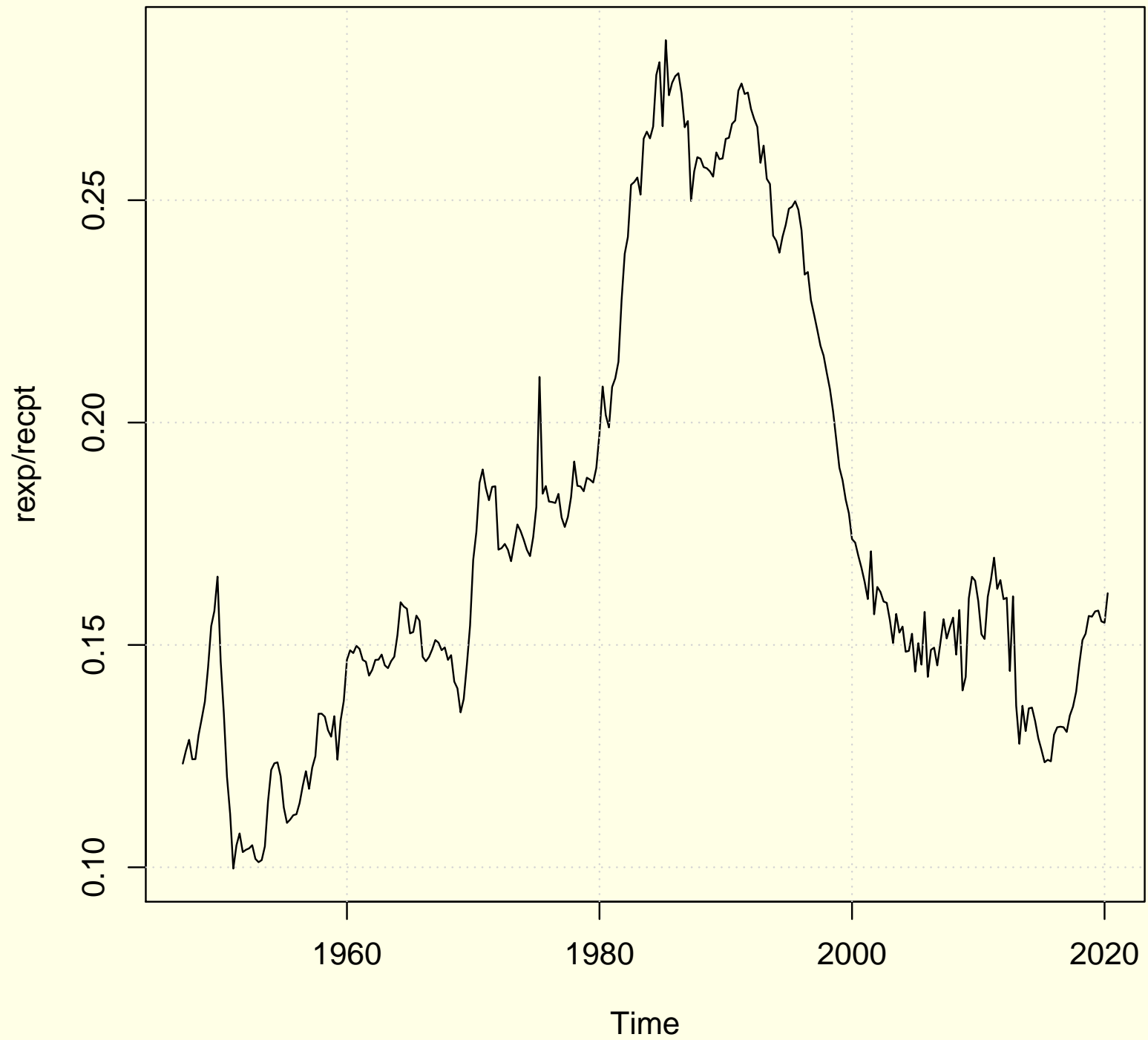
Marketable debt / gdp



Primary deficit / debt



Interest expense / total receipts



Zero fiscal cost debt?

- $r < g$, i.e. the real interest rate on government debt is below the growth rate of real gdp, implies we can issue debt, roll it over forever, i.e. never back it with taxes, and nonetheless the ratio of the debt to gdp shrinks over time.
- This reasoning applies to a *one-time* increase in debt. The steady state version is

$$\frac{\dot{b}}{b} - \frac{\dot{y}}{y} = \frac{\delta}{b} + r - \frac{\dot{y}}{y}.$$

- The condition for no growth in b/y is then

$$\frac{\delta}{y} < (g - r)\frac{b}{y}$$

$$r(b/y)$$

- In growth models we expect in steady state to see $g < \rho$, where ρ is the private sector rate of return on capital.
- If government debt pays a lower rate than private capital, this must be because of some service it provides (hedging, liquidity, regulatory constraints), and such services are likely to have finite demand.
- So we can expect that r increases with b/y , eventually reaching ρ .

Limits to b/y

- If $r'(b/y)$ is non-decreasing and positive, as seems likely, it will reach $\rho > g$ at some finite level of b/y , so there will be a finite maximum to sustainable b/y .
- The condition that a higher b/y can be sustained without increasing δ/y is that $r'(b/y) + r < g$, not $r < g$.
- Furthermore, well before the maximum sustainable b/y , while $r < g$ is still true, $g - r - r'(b/y)$ will become negative, so that increases in b/y require increases in δ/y for sustainability.

Japan

Illustrates that the fiscal theory of the price level is not a $b \rightarrow p$ one-way causal arrow, but rather a balance of expectations of future fiscal policy against current debt.

What is to be done?