

Debt and Economic Growth

Keiichiro Kobayashi

Keio University, CIGS, RIETI, Tokyo Foundation

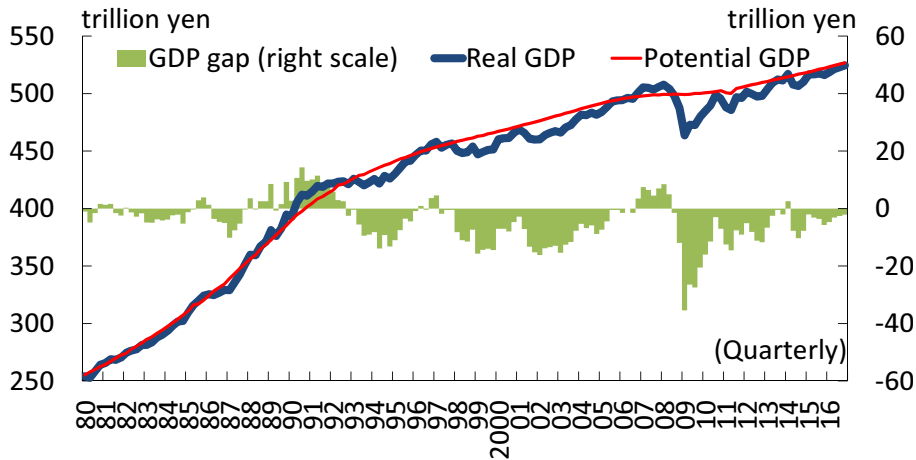
June 2, 2017 @ JEF-APRC, Stanford 2017

Japan

- 1980s High economic growth (Boom): Asset bubbles
- 1990s Low economic growth (Stagnation): Nonperforming loans
- 2000s Low economic growth (Stagnation): Public debt

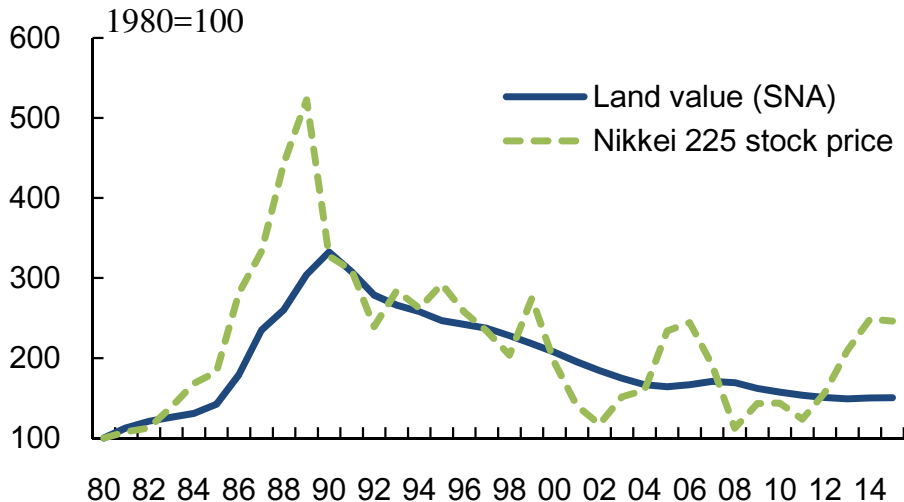
“Secular stagnation” in Japan

Real and potential GDP



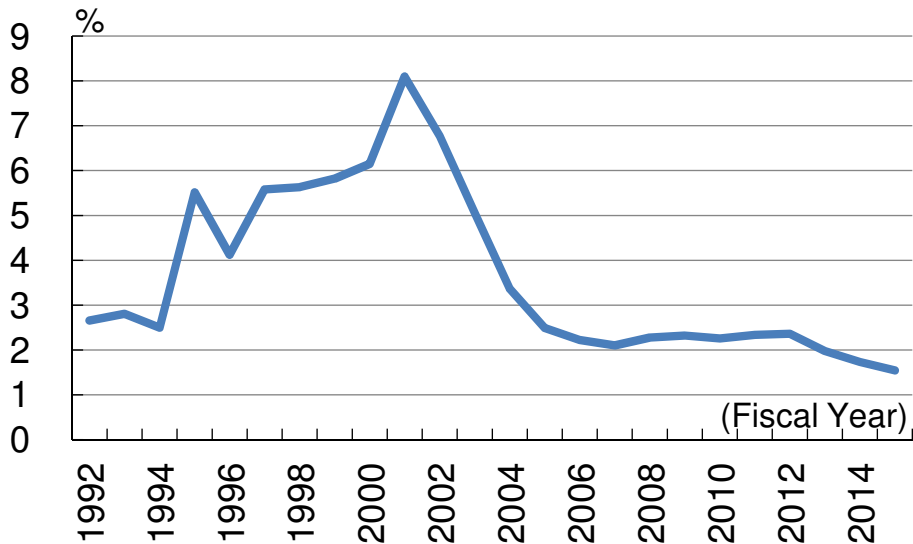
Sources: Cabinet Office, Government of Japan, "Annual Report on National Accounts"

Asset prices: land and stocks



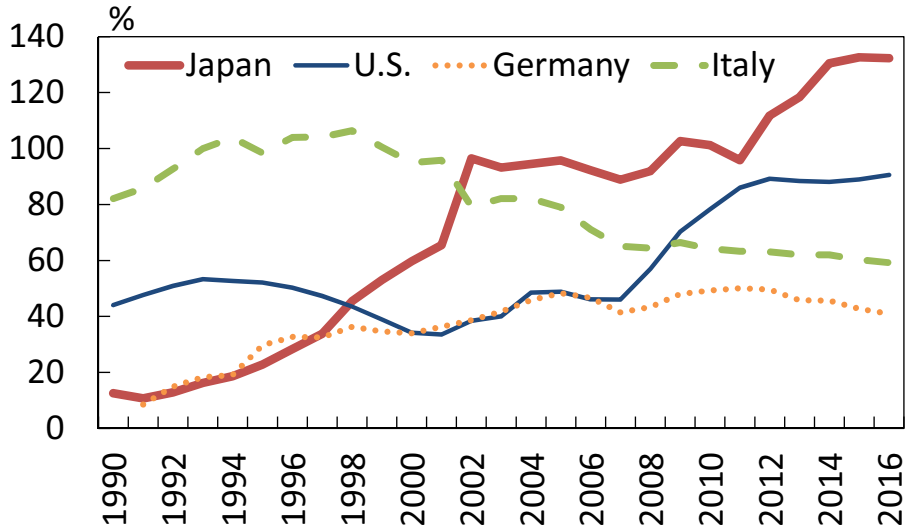
Sources: Cabinet Office, Government of Japan, "Annual Report on National Accounts", The Nikkei.

Nonperforming loans-to-GDP ratio



Sources: Financial Services Agency, *Status of Non-Performing Loans*; Cabinet Office, Government of Japan, *Annual Report on National Accounts*.

Public debt



Source: OECD, Economic Outlook No.100

Does excessive debt depress the economy persistently?

- Debt in private sector
- Borrowing constraints on inter-temporal debt b and intra-temporal debt σ , which finances the working capital

- $b \leq \theta S$

Kiyotaki-Moore 1997

Temporary effect

- $\sigma \leq \theta \max \{S - b, 0\}$

Jermann-Quadrini 2012

Temporary effect

- $\sigma \leq \phi y(\sigma) + \max \{\theta S - b, 0\}$

Kobayashi-Shirai 2017

Permanent effect

Why does excessive debt have a permanent effect?

- Borrowing constraints : $\sigma \leq \phi y(\sigma) + \max \{ \theta S - b, 0 \}$

- Define σ_z by $\sigma_z = \phi y(\sigma_z)$

- Define b_z by $b_z = \frac{y(\sigma_z) - \sigma_z}{r}$

- Suppose $b_z > \theta S$

- If $b_0 = b_z$, then for all t ,

$$b_t = b_z,$$

$$\sigma_t = \sigma_z$$

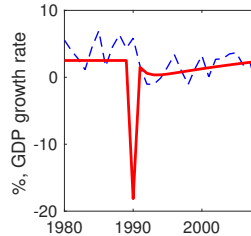
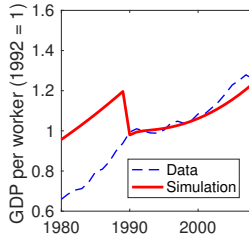
Debt in private sector can cause secular stagnation: simulation

Kobayashi and Shirai (2017)

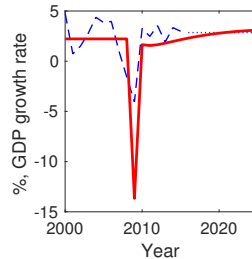
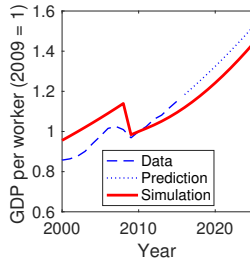
LV

growth rate

Japan



US



Policy implication for excessive debt in private sector

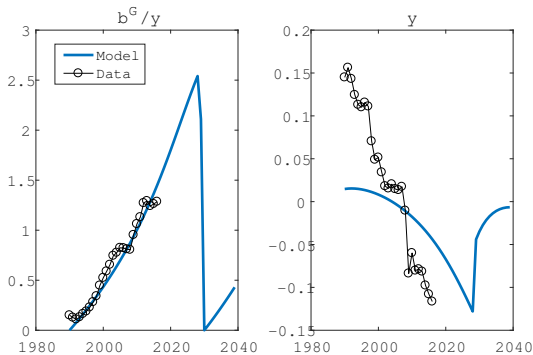
- Private-sector debt may cause persistent stagnation
 - Japan 1990s
 - United States 2010s?
- Debt reduction may enhance economic growth
 - Corporate or household debt
 - Bank recapitalization and write-off of nonperforming loans
 - Debt forgiveness and restructuring of the borrowers

Tail risk of public debt

- Nonperforming loans disappeared in 2000s in Japan
- Public debt is exploding in 2010s
- Tail risk depresses the economy persistently
 - Gourio (2013)
 - Kozlowsky-Veldkamp-Venkateswaran (2015)
- Tail risk for Japan = Debt crisis = Hyperinflation
 - Persistent stagnation **today** may be caused by **future** risk of tail event
 - Tail risk is “growing”
 - ⇒ Not only *level* but also *growth rate* of GDP is depressed

Simulation and data (Japan)

- Kobayashi and Ueda (work in progress)



Inter-generational conflict on public debt

- Public-sector debt may cause persistent stagnation
 - Japan 2010?
- Fiscal consolidation = Inter-generational investment
 - Current generation pays the **cost** of investment, i.e., higher tax
 - Future generation enjoys the **return**, i.e., economic stability
- Non-existence of democratic implementation of fiscal consolidation
 - Future generation cannot commit to pay reward of fiscal consolidation to Current generation
 - Current generation has no incentive to implement fiscal consolidation
- Need political system reform
 - To create political actors that represent future generation
 - Independent fiscal agency

- Kobayashi and Shirai (2017) “Debt-ridden borrowers and economic slowdown”

- Kobayashi (2017) “Persistent economic slowdown and debt-ridden borrowers” *VOX column*
<http://voxeu.org/article/persistent-economic-slowdown-and-debt-ridden-borrowers>