

Macroeconomics | Lecture 10

Government Debt: the Snowball and the Currency

Group Activity - 9 -

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How this block runs. You work in your home group of three or four, textbook open. Roles rotate: **Scribe**, **Reporter**, **Sceptic**, **Timekeeper**. Debt and balances are shares of GDP; rates are in per cent.

- **Phase 1, Concept checks (~10 min).** Each group votes together, argues for 90 seconds, then settles on one answer.
- **Phase 2, Desk problem (~20 min).** One country's debt dynamics, run through the snowball equation, part by part.
- **Phase 3, Case (~25 min).** One real story, ending hidden. Your group commits a prediction, then we reveal what happened.

Word list. The **deficit** is a flow (this year's borrowing); the **debt** is a stock (the total owed). Write debt as a share of GDP, b . The **primary balance** s is the budget balance excluding interest. Debt dynamics: $\Delta b = (r - g)b - s$, where r is the real interest rate on the debt and g the real growth rate. The **debt-stabilising primary balance** is $s^* = (r - g)b$, the surplus needed to hold b steady. Borrowing in **your own currency** means the central bank can always create the money to repay, so an own-currency government cannot be forced into outright default, though printing too much brings inflation.

Phase 1 – Concept checks

~10 MIN

ConceptTest 1. The deficit and the debt are related as follows:

- (a) they are the same thing.
- (b) the deficit is a flow (this year's borrowing); the debt is a stock (the accumulated total).
- (c) the debt is a flow; the deficit is a stock.
- (d) neither can be measured.

ConceptTest 2. A country's debt is 100 per cent of GDP. The real interest rate on it is 3 per cent and the economy grows at 5 per cent, with a balanced primary budget ($s = 0$). Over the next year the debt-to-GDP ratio will

- (a) rise.
- (b) fall.
- (c) stay exactly the same.
- (d) double.

ConceptTest 3. One country has government debt well over 200 per cent of GDP and has not been forced to default; another was forced into default and austerity at a much lower ratio. The main difference is that

- (a) the first is simply richer.
- (b) the first borrows in its own currency, which its central bank can always create; the second used a shared currency it cannot print.
- (c) the second had no debt.
- (d) their interest rates were identical.

ConceptTest 4. Cutting government spending sharply in a deep recession can, at least in the short run, raise the debt-to-GDP ratio because

- (a) it always lowers interest rates.
- (b) it shrinks GDP, the denominator, through the multiplier, sometimes by more than it cuts the debt.
- (c) it has no effect on GDP.
- (d) it raises growth immediately.

Phase 2 – The desk problem

~20 MIN

One country's debt, good times and bad

With debt as a share of GDP b , the change each year is $\Delta b = (r - g)b - s$, where r is the real interest rate on the debt, g the real growth rate, and s the primary surplus as a share of GDP. The debt-stabilising primary surplus is $s^* = (r - g)b$. The country starts with $b = 100$ per cent of GDP (so $b = 1$) and a balanced primary budget ($s = 0$).

(a) **Good times (worked for you).** With $r = 3$ per cent and $g = 5$ per cent,

$$\Delta b = (0.03 - 0.05)(1) - 0 = -0.02,$$

so the debt ratio *falls* by 2 points a year even though the government runs no primary surplus. Growth is doing the work.

(b) **A crisis.** The interest rate on the debt jumps to $r = 6$ per cent and growth falls to $g = 2$ per cent, still with $s = 0$. Find Δb . Which way is the debt ratio moving now, and by how much?

(c) **Stabilising the debt.** In the crisis of (b), what primary surplus s^* would just hold the debt ratio steady ($\Delta b = 0$)?

(d) **Level or gap?** Both (a) and (b) start from the same debt, 100 per cent of GDP. In one or two sentences, explain why the gap between r and g , not the level of debt on its own, decides whether the debt is sustainable.

Phase 3 – The case

~25 MIN

Downgraded, and then?

How to run this. Read the story with your group. The ending is hidden on purpose. Answer questions 1 and 2, commit a written prediction to question 3 before the reveal, and do not search the internet.

The story. One government borrows in its own currency, the currency its own central bank issues. By law, though, the total it may borrow is capped, and the legislature must vote to raise that ceiling. In the summer of 2011 the two parties deadlocked over the vote. For weeks it was not certain the ceiling would be raised in time, which raised an extraordinary possibility: that the government might miss a payment on its debt, not because it lacked the money, but because of a political standoff. A deal was struck at almost the last moment. A few days later, for the first time in history, a major rating agency stripped this government's debt of its top credit rating.

The story stops here.

Four questions (commit your answer to question 3 in writing before the reveal):

1. The government borrows in its own currency. In the sense used in the lecture, can it ever be *forced* into outright default the way a shared-currency country can? What, then, was the real risk in the 2011 standoff?
2. A downgrade normally warns investors that a borrower is riskier, which usually pushes up the interest rate the borrower must pay. Given that this government prints the currency its debt is written in, what do you expect a downgrade to do to investors' actual willingness to hold its debt?
3. **Predict.** In the days after this government lost its top rating, did the interest rate on its debt rise, as a downgrade would normally imply, or fall?
4. What does this episode show about the difference between a country that borrows in its own currency and one that does not, and about where the real limits on such a government's debt lie?

End of activity handout. Solutions are distributed after the block.