Macroeconomics 2026
Shanghai Jiao Tong University
Summer School 2026
Final Examination
With Solutions

Reading time: 10 minutes. **Writing time:** 120 minutes.
Total marks: 100. **Calculators are permitted.**
Instructions: Answer **all** questions. In Section A, circle the letter of the single best answer. In Sections B and C, show your working and write in clear sentences.

Structure:

- **Section A**: Multiple choice, 20 questions, 2.5 marks each (**50 marks**).
- **Section B**: One analytical problem in five parts (**30 marks**).
- **Section C**: One short interpretation (**20 marks**).

Useful formulas. Short-run output $\tilde{Y} = (Y - \bar{Y})/\bar{Y} \times 100$; Okun's law $u - \bar{u} = -\frac{1}{2}\tilde{Y}$; balance sheet $E = A - D$, book leverage $L = A/E$, equity is wiped out when $|\Delta A/A| \geq E/A = 1/L$; multiplier $= 1/(1 - \bar{x})$; IS curve $\tilde{Y} = \bar{a} - \bar{b}\,(R - \bar{r})$; policy rule $R - \bar{r} = \bar{m}\,(\pi - \bar{\pi})$; Taylor rule $i = \bar{r} + \pi + 0.5\,(\pi - \pi^*) + 0.5\,\tilde{Y}$ (here $\pi^* = \bar{\pi}$, the inflation target); Phillips curve / AS $\Delta\pi_t = \pi_t - \pi_{t-1} = \bar{v}\,\tilde{Y}_t + \bar{o}_t$; sacrifice ratio $= 1/\bar{v}$; AD $\tilde{Y} = \bar{a} - \bar{b}\,\bar{m}\,(\pi - \bar{\pi})$; Fisher $i = R + \pi^e$ (at the zero lower bound, $i = 0$ gives $R = -\pi^e$); borrowing rate $R = R_{ff} + \bar{f}$; debt dynamics $\Delta b = (r - g)\,b - s$, debt-stabilising surplus $s^* = (r - g)\,b$.

Section A: Multiple Choice (20 questions × 2.5 marks = 50 marks)

1. Potential output is $\bar{Y} = 500$ and actual output is $Y = 520$. Short-run output $\tilde{Y}$ is:

(A) +20%, a boom.

(B) −4%, a recession.

(C) +2%, a boom.

(D) +4%, a boom.

Solution. (D). $\tilde{Y} = (520 - 500)/500 \times 100 = +4\%$: output is above potential, the economy is running hot. (A) reads the 20-unit gap as a percentage without dividing by potential; (B) flips the sign, mistaking a boom for a recession; (C) halves the gap as if Okun's law were part of the definition.

2. Unemployment is $u = 8\%$ and the natural rate is $\bar{u} = 5\%$. Using Okun's law, $u - \bar{u} = -\frac{1}{2}\tilde{Y}$, the output gap is:

(A) −6%.

(B) −1.5%.

(C) +6%.

(D) −3%.

Solution. (A). $\tilde{Y} = -2\,(u - \bar{u}) = -2 \times (8 - 5) = -6\%$: three points of cyclical unemployment signal a six-point negative gap. (B) divides by two instead of multiplying; (C) makes a sign error, reading high unemployment as a boom; (D) passes the unemployment gap through one-for-one, forgetting the factor of two.

3. A bank holds \$60bn of assets on \$2.5bn of equity. Approximately what percentage fall in the value of its assets would wipe out its equity entirely?

(A) About 24%.

(B) About 2.5%.

(C) About 4%.

(D) About 40%.

Solution. (C). Equity is wiped out when $|\Delta A/A| \geq E/A = 2.5/60 \approx 4.2\%$, so a fall of about 4% is enough. (A) quotes book leverage $L = A/E \approx 24$ as if it were the buffer; (B) reads the \$2.5bn equity figure as a percentage; (D) is a tenfold decimal slip.

4. A bank holds sound long-term loans and bonds but funds much of them with short-term debt that must be renewed frequently. One week short-term lenders refuse to roll over the funding. The bank's problem is best described as:

(A) insolvency: the value of its assets has fallen below what it owes.

(B) illiquidity: its assets are sound, but it cannot meet funding needs once short-term lenders step back.

(C) excess capital: too much of its own equity is tied up in long-term bonds.

(D) interest-rate risk: its bonds lose value whenever the policy rate rises.

Solution. (B). This is maturity mismatch: the assets are sound but cannot be turned into cash quickly enough. The bank is solvent but illiquid, the solvency-versus-liquidity distinction from class. (A) would require the assets themselves to have gone bad; (C) describes the opposite of a thin-equity firm; (D) is a real risk in general but is not what a funding freeze is.

5. A pandemic closes shops and collapses household spending at the same time, but banks remain well capitalised. Compared with a financial crisis producing a recession of equal depth, the short-run model predicts the recovery from the pandemic recession will be:

(A) faster and V-shaped, because no damaged bank balance sheets need to be repaired first.

(B) about the same, because the depth of a recession determines the length of its recovery.

(C) slower, because supply shocks permanently destroy part of the economy's capacity.

(D) slower, because two shocks arriving together take roughly twice as long to unwind.

Solution. (A). With banks intact there is no slow balance-sheet healing, so once the shocks lift, spending snaps back: Covid's V against 2008's grind. The nature of the shock, not its depth (B), its permanence (C), or its count (D), determines the shape of the recovery.

6. The IS curve is $\tilde{Y} = \bar{a} - \bar{b}\,(R - \bar{r})$ with $\bar{a} = 0$ and $\bar{b} = 0.5$. To cool the economy, the central bank raises the real rate 2 percentage points above the neutral rate. The output gap becomes:

(A) $+1\%$.

(B) -2%.

(C) -4%.

(D) -1%.

Solution. (D). $\tilde{Y} = 0 - 0.5 \times (+2) = -1\%$. (A) makes a sign error (a rate rise cannot cause a boom); (B) passes the rate change through one-for-one, ignoring $\bar{b}$; (C) divides by $\bar{b}$ instead of multiplying.

7. Households re-spend $\bar{x} = 0.75$ of each extra dollar of income. Business confidence falls, so the demand shock $\bar{a}$ drops by 0.5% of potential output before any multiplier effects. With the central bank holding $R = \bar{r}$, the total impact on the output gap is:

(A) -0.5%.

(B) -0.375%.

(C) -2.0%.

(D) -0.67%.

Solution. (C). The multiplier is $1/(1 - 0.75) = 4$, so $\tilde{Y} = 4 \times (-0.5) = -2.0\%$: each round of lost income cuts spending again. (A) forgets the multiplier; (B) multiplies the shock by $\bar{x}$ itself; (D) uses $1/\bar{x} \approx 1.33$ as the multiplier.

8. Inflation was 4% last year. This year the economy runs below potential with $\tilde{Y} = -2\%$, the Phillips slope is $\bar{v} = 0.5$, and there is no supply shock. This year's inflation is:

(A) 4.0%.

(B) 3.0%.

(C) 5.0%.

(D) -1.0%.

Solution. (B). $\Delta\pi = 0.5 \times (-2) = -1$ point, so $\pi = 4 - 1 = 3\%$: slack pulls inflation down. The Phillips curve moves the *change* in inflation, not its level. (A) assumes slack leaves inflation untouched; (C) adds when it should subtract; (D) reports the change as if it were the level.

9. A central bank follows $i = \bar{r} + \pi + 0.5\,(\pi - \pi^*) + 0.5\,\tilde{Y}$. Inflation rises by 1 percentage point while the output gap is unchanged. What happens, and does the rule satisfy the Taylor principle?

(A) The nominal rate rises 0.5 points, so the real rate falls 0.5 points: the rule is destabilising.

(B) The nominal rate rises 1.5 points but the real rate is unchanged, so the rule is neutral.

(C) The rule violates the Taylor principle, because its inflation coefficient of 0.5 is below one.

(D) The nominal rate rises 1.5 points, so the real rate rises 0.5 points: the rule satisfies the principle.

Solution. (D). The total response of i to π is $1 + 0.5 = 1.5 > 1$, so the real rate rises by 0.5 points and the rule satisfies the Taylor principle: only a total coefficient above one actually cools the economy. (A) misses the built-in one-for-one π term; (B) confuses the nominal and real responses; (C) judges the 0.5 coefficient alone.

10. The Phillips slope is $\bar{v} = 0.5$. The central bank wants to reduce inflation by 3 percentage points. By the sacrifice-ratio logic, the cumulative output cost is:

(A) 6 percentage-point-years of output.

(B) 1.5 percentage-point-years of output.

(C) 3 percentage-point-years of output.

(D) 2 percentage-point-years of output.

Solution. (A). The sacrifice ratio is $1/\bar{v} = 1/0.5 = 2$ point-years per point of disinflation, so 3 points cost $3 \times 2 = 6$ percentage-point-years. (B) multiplies by $\bar{v}$ instead of dividing; (C) assumes a one-for-one cost; (D) is the cost of a single point, forgetting to multiply by three.

11. Inflation rises above target and, along the AD curve $\tilde{Y} = \bar{a} - \bar{b}\,\bar{m}\,(\pi - \bar{\pi})$, output falls. The economic chain behind this downward slope is:

(A) higher inflation erodes the real value of households' money holdings, so consumption falls directly, with no policy response needed.

(B) the policy rule makes the central bank raise the real interest rate when inflation is high, and the higher real rate lowers investment.

(C) higher inflation lowers the real wage, so workers supply less labour and firms must cut production below potential.

(D) firms respond to higher input costs by cutting output until prices fall back, whatever the central bank does.

Solution. (B). In this model AD slopes down *because of the central bank*: $\pi \uparrow$ makes the rule raise R, which cuts investment and $\tilde{Y}$. (A) is the real-balance story from a different framework; (C) and (D) are supply-side mechanisms, which belong to the AS curve, not AD.

12. An economist observes inflation rising while output falls in the same quarter. In the AS/AD framework, which shock produces exactly this signature on impact?

(A) A positive demand shock: the boom raises inflation while the central bank's response cuts output.

(B) A negative demand shock: the slump reduces supply capacity, so prices rise as output falls.

(C) An adverse supply shock ($\bar{o} > 0$): the AS curve shifts up, so inflation rises and output falls at once.

(D) A monetary tightening: higher borrowing costs feed into firms' prices, so inflation rises as output falls.

Solution. (C). Only a supply shock moves inflation and output in *opposite* directions on impact: stagflation, the 1970s oil-shock signature. Demand shocks, including monetary policy, move them in the *same* direction, so (A), (B) and (D) all mis-assign the pattern.

13. The nominal policy rate is at the zero lower bound, $i = 0$, and expected inflation has fallen to $\pi^e = -2\%$. Using the Fisher equation, the real interest rate is:

(A) $R = +2\%$, which depresses investment further just when the economy is weakest.

(B) $R = -2\%$, which stimulates borrowing and helps the economy recover.

(C) $R = 0\%$, because at the bound the real and nominal rates coincide.

(D) $R = +2\%$, which stimulates demand because a positive real rate rewards saving.

Solution. (A). $R = i - \pi^e = 0 - (-2) = +2\%$: deflation forces the real rate up at the worst possible moment, the engine of the deflationary spiral. (B) makes a sign error; (C) forgets that expectations still drive a wedge at the bound; (D) has the right number but reverses what a high real rate does to demand.

14. The IS sensitivity is $\bar{b} = 0.8$ and borrowers pay $R = R_{ff} + \bar{f}$. A financial crisis raises the risk premium $\bar{f}$ by 2 percentage points, but the policy rate is only 1 point above zero, so the central bank can cut by at most 1 point. Starting from potential, the resulting output gap is:

(A) 0%: the cut fully offsets the wedge, as policy always can in the model.

(B) -1.6%: the whole wedge passes through, because policy cannot respond at all.

(C) -0.8%: the one un-offset point of the wedge, times $\bar{b} = 0.8$.

(D) -1.0%: the remaining point of the wedge translates one-for-one into the gap.

Solution. (C). The bank offsets 1 of the 2 points before hitting zero; the borrowing rate is still 1 point higher, so $\tilde{Y} = -0.8 \times 1 = -0.8\%$. (A) ignores the zero lower bound; (B) ignores the 1-point cut the bank can still make; (D) forgets to multiply by $\bar{b}$.

15. In both 1933 and 2009 the nominal policy rate was near zero. In 1933 prices were expected to keep falling at about 6% a year; in 2009 expected inflation stayed anchored near $+2\%$. Using $R = i - \pi^e$, which statement is correct?

(A) Both economies received the same stimulus, because the nominal rate was the same in each.

(B) The real rate was about $+6\%$ in 1933 and about -2% in 2009, so the same nominal rate was far tighter in 1933.

(C) The real rate was about -6% in 1933 and $+2\%$ in 2009, so policy was far looser in 1933.

(D) Real rates cannot be compared at the zero lower bound, because the Fisher equation no longer applies there.

Solution. (B). $R = 0 - (-6) = +6\%$ in 1933 and $R = 0 - 2 = -2\%$ in 2009: an eight-point difference made entirely of expectations, which is why 2008 did not become 1933. (A) reads policy off the nominal rate; (C) reverses the two signs; (D) is exactly backwards, the Fisher relation is what makes the bound dangerous.

16. A country has debt $b = 0.9$ (90% of GDP), real interest rate $r = 5\%$, growth $g = 2\%$, and runs a primary surplus $s = 1\%$ of GDP. Using $\Delta b = (r - g)\, b - s$, the change in the debt-GDP ratio is:

(A) $+2.7\%$ of GDP.

(B) $+2.0\%$ of GDP.

(C) $+3.7\%$ of GDP.

(D) $+1.7\%$ of GDP.

Solution. (D). $\Delta b = (0.05 - 0.02) \times 0.9 - 0.01 = 0.027 - 0.010 = +1.7\%$ of GDP: the snowball outruns the surplus and the ratio rises. (A) forgets to subtract the surplus; (B) drops b and computes $(r - g) - s$ directly; (C) adds the surplus instead of subtracting it.

17. A country has debt $b = 1.5$ (150% of GDP), real interest rate $r = 4\%$ and growth $g = 1.5\%$. The debt-stabilising primary surplus $s^* = (r - g)\, b$ is:

(A) 2.50% of GDP.

(B) 3.75% of GDP.

(C) 6.00% of GDP.

(D) 1.67% of GDP.

Solution. (B). $s^* = (0.04 - 0.015) \times 1.5 = 0.025 \times 1.5 = 3.75\%$ of GDP: the higher the debt, the larger the surplus a given $(r - g)$ demands. (A) forgets to multiply by the debt ratio; (C) uses r alone and ignores growth; (D) divides $(r - g)$ by b instead of multiplying.

18. Country X has government debt of 90% of GDP issued in a currency it does not control. Country Y has debt of 200% of GDP issued in its own currency. Which country faces the greater risk of being *forced* into outright default, and why?

(A) Country X: it cannot issue the currency of its debt, so a rollover panic can force outright default.

(B) Country Y: forced-default risk rises mechanically with the debt ratio, so 200% is the more dangerous position.

(C) Neither: forced-default risk depends only on the primary balance, so the currency of the debt is irrelevant.

(D) Country Y: its central bank will eventually monetise the debt, and monetisation is the same thing as default.

Solution. (A). The first-order determinant of forced default is the currency of denomination, not the level: an own-currency sovereign can always make the nominal payment (its risk is inflation), while Country X cannot print what it owes, the Greece-versus-Japan contrast. (B) ranks by level; (C) ignores denomination entirely; (D) conflates inflation risk with default.

19. A country has debt $b = 1.0$, growth $g = 2\%$, and borrows at $r = 3\%$. Its fundamentals do not change, but lenders suddenly fear default and demand $r = 7\%$ to roll over the debt. In the debt model, this fear:

(A) changes nothing, because default is determined by fundamentals alone and the fundamentals have not moved.

(B) reduces the risk of crisis, because the higher yield draws in new lenders and eases the rollover problem.

(C) raises the snowball $(r - g)\, b$ from 1% to 5% of GDP a year, making the feared default itself more likely.

(D) cannot force a crisis, because the extra 4 points simply compensate lenders for the risk they now bear.

Solution. (C). The fear raises the interest burden from $(0.03 - 0.02) \times 1 = 1\%$ to $(0.07 - 0.02) \times 1 = 5\%$ of GDP with unchanged fundamentals, so the belief can confirm itself: two equilibria, a bank run on a sovereign. (A) misses that r itself is belief-driven; (B) and (D) treat the higher yield as harmless compensation.

20. An economy is at the zero lower bound, where the fiscal multiplier is 1.5. The government has debt $B = 120$ and GDP $Y = 100$ (so $b = 120\%$), and it cuts spending by 2% of GDP to bring the ratio down. On impact, the model predicts:

(A) the ratio falls one-for-one with the cut, from about 120% down to about 118%.

(B) the recession shrinks GDP but the debt stock is unchanged, so the ratio rises to about 124%.

(C) the ratio does not move, because the numerator and denominator fall in equal proportion.

(D) output falls by about 3%, so the ratio rises to roughly 122% despite the lower debt stock.

Solution. (D). The cut lowers debt to 118 but shrinks GDP by $2 \times 1.5 = 3\%$, so $b = 118/97 \approx 122\%$: self-defeating austerity, the euro-area 2010–12 case. (A) ignores the denominator; (B) shrinks GDP but forgets the cut also lowers the debt stock, dividing the unchanged 120 by $97 \approx 124\%$; (C) invents an exact proportionality that does not hold.

Section B: Analytical Problem (30 marks)

An economy is hit by a financial crisis, and we follow it piece by piece. Its representative bank holds assets of \$2,000bn, funded by \$1,900bn of debt and \$100bn of equity. On the demand side, households re-spend a fraction $\bar{x} = 0.6$ of each extra dollar of income; the IS curve is $\tilde{Y} = \bar{a} - \bar{b}\,(R - \bar{r})$ with $\bar{b} = 0.5$ and a neutral real rate $\bar{r} = 2\%$; the Phillips curve is $\Delta\pi_t = \bar{v}\,\tilde{Y}_t + \bar{o}_t$ with $\bar{v} = 0.4$. The economy starts at potential with inflation at the 2% target and unemployment at the natural rate $\bar{u} = 4\%$.

(a) **[6 marks]** Compute the bank's book leverage $L = A/E$. The crisis then cuts the value of its assets by 4% (debt is unchanged): find the new equity and the new book leverage. About what further percentage fall in asset values would now make the bank insolvent, and why does high leverage make the whole system fragile?

(b) **[6 marks]** The credit freeze cuts autonomous demand: $\bar{a} = -1.2$ (a fall of 1.2% of potential output before multiplier effects), while the central bank initially holds $R = \bar{r}$. Taking account of the multiplier, find the output gap on impact, and use Okun's law to find the unemployment rate.

(c) **[6 marks]** Using the Phillips curve with no supply shock, find the change in inflation this year and its new level. Then find the real rate that restores $\tilde{Y} = 0$ (work with $\tilde{Y} = \bar{a} - \bar{b}\,(R - \bar{r})$ and $\bar{a} = -1.2$, ignoring the multiplier): how far below the neutral rate must the bank set R, and what is the required level of R?

(d) **[6 marks]** A real rate this low leaves the nominal rate barely above zero, and if expectations slip the bound starts to bind. Suppose the slump turns expected inflation to $\pi^e = -1\%$ with $i = 0$. Find the real rate borrowers now face. Compare it with a neighbouring economy, also at $i = 0$, whose expectations stay anchored at $+2\%$: by how many points do the two real rates differ? In one or two sentences, explain the deflationary spiral this comparison illustrates.

(e) **[6 marks]** Bailouts and the recession leave government debt at $b = 1.0$ with $r = 3\%$, $g = 1\%$, and a primary deficit of 2% of GDP ($s = -2\%$). Find Δb and the debt-stabilising primary surplus s^*, and state by how many points of GDP the primary balance must improve to hold the ratio steady. In one sentence, say what the country's own-currency status does, and does not, protect it from.

Solution. (a) Book leverage $L = A/E = 2{,}000/100 = \mathbf{20}$. A 4% fall cuts assets by $0.04 \times 2{,}000 = 80$ to 1,920; with debt fixed at 1,900, the new equity is $1{,}920 - 1{,}900 =$ **\$20bn** and the new book leverage is $1{,}920/20 = \mathbf{96}$. Insolvency now needs only a further fall of $E/A = 20/1{,}920 \approx \mathbf{1}\%$. High leverage means a small percentage loss on assets is a huge percentage loss of equity, so one shock leaves the whole system one small step

from insolvency, and simultaneous deleveraging (fire sales) pushes asset prices down for everyone else: the financial accelerator.

(b) The multiplier is $1/(1-\bar{x}) = 1/0.4 = \mathbf{2.5}$. With $R = \bar{r}$ the rate term is zero, so on impact $\tilde{Y} = 2.5 \times (-1.2) = \mathbf{-3}\%$. Okun's law: $u - \bar{u} = -\frac{1}{2} \times (-3) = +1.5$ points, so $u = 4 + 1.5 = \mathbf{5.5}\%$.

(c) Phillips: $\Delta\pi = \bar{v}\,\tilde{Y} = 0.4 \times (-3) = \mathbf{-1.2}$ points, so inflation falls from 2% to $\mathbf{0.8}\%$: the slump pulls inflation down. To restore potential: $0 = -1.2 - 0.5\,(R - \bar{r})$ gives $R - \bar{r} = -1.2/0.5 = \mathbf{-2.4}$ points, so the bank must set $R = 2 - 2.4 = \mathbf{-0.4}\%$, a *negative* real rate. (Keeping the multiplier changes nothing: it scales the whole bracket, and restoring $\tilde{Y} = 0$ still requires the bracket to be zero, so accept the same answer derived with the multiplier in place.)

(d) At the bound, $R = i - \pi^e = 0 - (-1) = \mathbf{+1}\%$: instead of the -0.4% the economy needs, borrowers face a positive and rising real rate. The anchored neighbour has $R = 0 - 2 = \mathbf{-2}\%$, so the two real rates differ by $1 - (-2) = \mathbf{3}$ points, made entirely of expectations. The spiral: deflation raises the real rate, the higher real rate cuts investment and deepens the slump, and by the Phillips curve the deeper slump drags inflation down further, raising the real rate again, all while the nominal rate is stuck at zero.

(e) $\Delta b = (r - g)\,b - s = (0.03 - 0.01) \times 1.0 - (-0.02) = 0.02 + 0.02 = \mathbf{+4}\%$ of GDP a year: the ratio is rising fast, hit twice, by the positive snowball and by the deficit. The stabilising surplus is $s^* = (r - g)\,b = 0.02 \times 1.0 = \mathbf{2}\%$ of GDP, so the primary balance must improve by $2 - (-2) = \mathbf{4}$ points of GDP. Own-currency status protects the country from being *forced* into outright default (it can always make the nominal payment), but not from inflation risk or from a market credibility crisis that drives its borrowing costs up within days.

Section C: Interpretation (20 marks)

Read the following and answer in **no more than five sentences**. Use the concepts from the course; you do not need any calculation.

Two countries entered the 2010s with heavy government debts. Country J owed nearly twice its GDP, borrowed in a currency its own central bank issues and held mostly by its own citizens, and markets lent to it at some of the lowest interest rates in the world. Country G owed much less as a share of GDP, but in a currency shared with many neighbours, a currency Country G cannot create. When a new government in G revealed that the deficit was far larger than previously reported, lenders panicked: yields on G's bonds leapt, the heavier interest bill made default more likely, and that drove yields higher still. Deep spending cuts in the middle of the slump followed, yet G's debt-to-GDP ratio kept rising. The crisis ended only when the union's central bank declared it stood ready to buy member governments' bonds in whatever quantity was needed. Yields fell within weeks, although the bank never bought a single bond under the programme.

Question [20 marks]. Using the tools of Lecture 10, explain why lenders ran on Country G but not on the far more indebted Country J, why cutting spending in the middle of the slump failed to bring G's debt ratio down, and how a promise that was never used could end the crisis. Answer in at most five sentences.

Solution. Model answer (denomination, beliefs, and the backstop). Country J borrows in a currency its own central bank issues, so it can always make the nominal payment and can never be *forced* into outright default (its true risk is inflation), whereas Country G cannot print the shared currency it owes, so a rollover panic can force genuine default; the currency of denomination, not the debt level, decides who is vulnerable. G's crisis was self-fulfilling: the fear itself raised r, which raised the snowball $(r - g)\, b$ and the surplus needed to stand still, making the feared default more likely, so both optimism and pessimism were self-confirming, a bank run on a sovereign. Austerity in the slump was self-defeating: with a large multiplier (and no monetary offset in a deep recession), the cuts shrank GDP, the denominator of $b = B/Y$, faster than they shrank the debt, so the ratio rose. The central bank's pledge worked as a lender of last resort: a credible promise to buy without limit removed the bad equilibrium, so lenders no longer had to fear each other, yields fell, and the promise never had to be used. The episode shows that debt crises are made of denomination and beliefs, not of debt levels alone.

Marking guide (20 marks).

- **7 marks**: the currency of denomination as the first-order determinant: J (own currency) cannot be forced to default, its risk is inflation; G (shared currency, no printing press) can be forced into genuine default, which is why the run hit the less indebted country.

- **5 marks**: the self-fulfilling mechanism: fear raises r, which raises the snowball $(r-g)\,b$ and the required surplus, making default more likely; two equilibria on unchanged fundamentals, a bank run on a sovereign.
- **4 marks**: self-defeating austerity: with a high multiplier in the slump, spending cuts shrink GDP, the denominator of $b = B/Y$, so the ratio can rise even as borrowing falls.
- **2 marks**: the backstop: a credible lender of last resort removes the bad equilibrium, so it works precisely by never being needed.
- **2 marks**: clear writing within the five-sentence limit.

Answers that rank the two countries by their debt levels alone, or that treat the spending cuts as obviously prudent, earn little: the question tests the currency-denomination and beliefs account taught in the lecture.