

30490 Fiscal macro - General Exam

June , 2025

Time: 1 hour and 15 minutes

1 Question 1

Consider the following table:

Table 1: Determinants of Italian Debt/GDP Ratio (% of GDP)

	2023	2024	2025	2026	2027
Level	137.3	137.8	138.9	139.8	139.6
Change from previous year	-3.2	0.5	1.1	0.9	-0.2
Factors determining changes in public debt:					
Primary balance	3.4	0.4	-0.3	-1.1	-2.2
Snowball-effect	-4.5	-1.0	-0.7	0.1	0.7
of which: Interest	3.8	3.9	4.0	4.1	4.4
Stock-flow adjustment	-2.1	1.1	2.1	2.0	1.3
of which: Difference between cash and accruals	-2.6	1.6	1.8	1.3	0.8
Net accumulation of financial assets	0.2	-0.6	0.2	0.5	0.3
of which: Revenues from privatizations	0.0	0.0	-0.2	-0.3	-0.2
Debt revaluation effects	0.3	0.0	0.1	0.2	0.2
Other	0.0	0.0	0.0	0.0	0.0
p.m.: Implicit interest rate on debt (%)	2.9	3.0	3.0	3.1	3.2

Source: Table III.10, DEF 2024, page 75

1. Write down the equation for the dynamics of the debt/GDP ratio and map the elements in the equation to the entries in the Table.
2. Given the information available in the Table could you indicate the projections implied in the Table for GDP growth in year 2025 and in year 2026 ?
3. Is the Implicit interest rate on debt expressed in nominal or real terms in the Table ? Given the information available in the Table can you indicate the DEF projections for inflation in year 2025 and in year 2026 ?
4. What are the projections for Government deficits over the three-year period 2025-2027 ?
5. Given the available data, can you provide an assessment of debt sustainability ?

2 Question 2

Consider two Italian government bonds: a BTP and a BTP Italia, both issued at the end of January 2024 at a price of 100. The BTP pays an annual coupon of 4 percent, while the BTP Italia pays an annual coupon of 1.6 percent, adjusted based on the ISTAT index for consumer prices for households of workers and employees (FOI), excluding tobacco. Additionally, with BTP Italia, the principal adjustment is paid annually, with immediate recovery of inflation. At the end of January 2025, the price of the BTP is 104, and the price of the BTP Italia is 100. Setting the value of the ISTAT index to 1 at the end of January 2024, its value at the end of January 2025 is 1.013.

1. Assuming that the annual coupon is paid at the end of January 2025, what was the annual return of the two bonds for the period January 2024-January 2025?
2. What is the "break-even inflation" in January 2024 and in January 2025?
3. Indicate a sequence of annual inflation rates between January 2025 and January 2034 that would generate the same ex post yield at maturity in January 2035 for both the BTP and the BTP Italia.

3 Question 3

Based on the following Blanchard SDSA model answer the questions below. You can use the RShiny websites, [SDSA app 1](#) or [SDSA app 2](#).

$$\begin{aligned}
 R_t^{av} - g_t &= x_t + u_t \\
 x_t &= x_{t-1} + e_t^x, \quad e_t^x \sim N(0, s_x), \quad x_0 = 0.0 \\
 u_t &= a_u + e_t^u, \quad e_t^u \sim N(0, s_u) \\
 s_t &= (1 - c)a_s + c[(R_t^{av} - g_t)b_{t-1}] + e_t^s \quad 0 \leq c \leq 1 \quad e_t^s \sim N(0, s_s) \\
 b_t &= b_{t-1} + (R_t^{av} - g_t)b_{t-1} - s_t
 \end{aligned}$$

e^s, e^x and e^u are uncorrelated.

1. Under the condition of no feedback, the mean level of surplus depends on which parameter(s)?
2. The mean level of difference between r and g is determined by which parameter(s)?
3. Under the condition of no feedback and initial debt ratio equal to one, what is/are the condition(s) for a constant mean debt ratio?
4. Under the condition of no feedback, what is/are the condition(s) for a constant mean debt ratio?