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Chapter 4: **Macroeconomic Policy (I): Fiscal policy in the Euro-zone**

- Introduction
- Total, cyclical and cyclically-adjusted budget deficit
- The debt-financed budget deficit and conditions for financial solvency of a country
- The consolidated balance of the public sector and debt monetization
- The *Reformed* 'Stability & Growth Pact'

Introduction (I)

- **Fiscal policy** is the use of government expenditure and revenue collection (taxation) to influence the economy. It can be contrasted with the other main type of macroeconomic policy, monetary policy, which attempts to stabilize the economy by controlling interest rates and private spending.

- The two main instruments of fiscal policy are government expenditure and taxation. Changes in the level and composition of taxation and government spending can impact the level of aggregate demand and, hence, the level of economic activity.

Introduction (II)

- The changes in the aggregate level of economic activity induced through fiscal policy can be of two types:

  - Changes that operate *automatically* making the budget deficit follow a counter-cyclical pattern (i.e., automatic stabilizers)
  - Changes that require a *discretionary* decision on the part of the government to address a specific problem under specific circumstances (i.e., discretionary fiscal policy)

- The *government budget deficit* is the amount by which a certain measure of government revenue falls short of some measure of government spending.

Introduction (III)

- The meaning of deficit ('flow' variable) differs from that of debt ('stock' variable) which is an accumulation of annual deficits. Fiscal deficits occur when a government's expenditures exceed the tax revenue it generates.

- The fiscal deficit can be measured with or without including the flow of *interest payments* or *debt service* on the outstanding stock of debt as expenditures.

- The *primary deficit* is the gap between government spending on goods and services and tax revenue net of transfer payments. The *total deficit* (also called the fiscal deficit or the 'deficit') is the *primary* deficit plus the debt service.

Introduction (IV)

- Economic trends can influence the growth or shrinkage of fiscal deficits in different ways. Increased levels of economic activity lead to higher tax revenues, while government expenditures tend to rise (decrease) during downturns (upturns) because of higher (lower) outlays for social programs like unemployment benefits.

- Thus, the fiscal budget deficit can be thought of as consisting of two elements, *structural* and *cyclical*:
  - At the lowest point in a cyclical *downswing* there is high unemployment. This means that tax revenue is low and public expenditure is high (e.g. on unemployment insurance programmes).
  - At the peak of a cyclical *upswing* public spending on unemployment and social security programmes is low and tax revenue is high.

Introduction (V)

- The reasons why the *total* fiscal budget balance fluctuates across the business cycle are:
  - First, tax revenue (e.g. income tax) depends on household income and the pace of economic activity. The former decreases as the economy slows down during a recession, and government tax revenue falls *pari passu*.
  - Second, *corporate tax* is generally based on profits. In a recession profits tend to fall much faster than turnover. Thus, businesses pay much less tax while having only slightly less economic activity.
  - Third, *sales tax* depends on the monetary value of sales which tends to fall during recessions and vice-versa.
  - Last, governments normally pay *unemployment and welfare benefits*. The number of unemployed people and those on low incomes who are entitled to such benefits increases in a recession and decreases in a boom.

Total, cyclical, and cyclically-adjusted budget deficit (I)

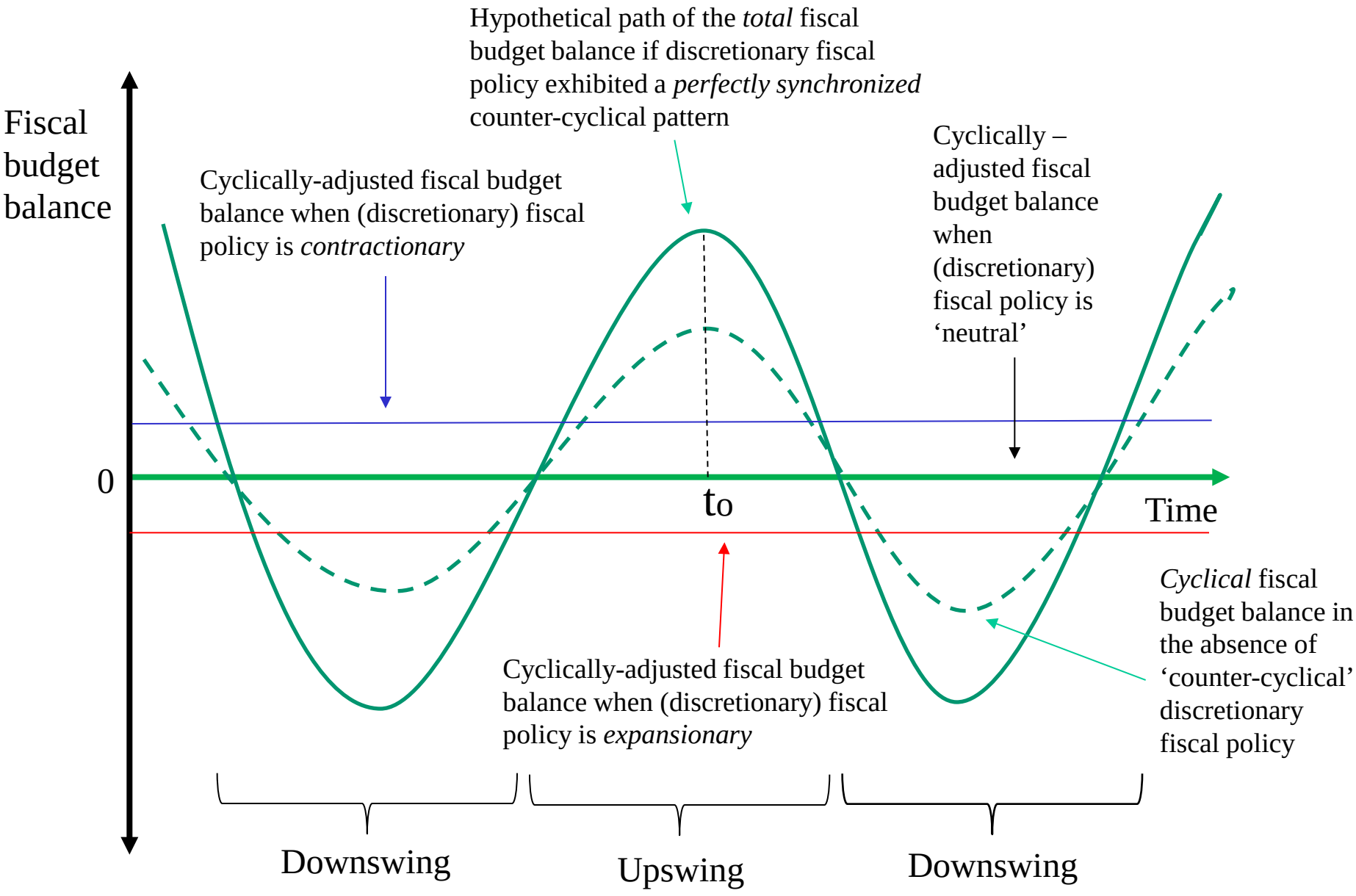
- The additional government borrowing required at the low point of the business cycle is the *cyclical budget deficit*. By definition, the *cyclical* budget deficit will be entirely repaid by a *cyclical* budget surplus at the peak of the cycle.

- The *structural* or *cyclically-adjusted deficit* is the budget deficit that remains across the business cycle because the general level of government spending exceeds government revenue. In other words, it is the *hypothetical* level of the budget deficit if current aggregate output were equal to potential aggregate output.

***Total* fiscal budget balance**	=	***Structural* or *cyclically-adjusted* fiscal budget balance**	+	***Cyclical* fiscal budget balance**
	=	$Y_t^* \cdot (t - g)$	+	$(Y_t - Y_t^*) \cdot (t - g)$

where *t* and *g* denote respectively the *weight* of total tax revenue and government spending in national income

***Total* fiscal budget balance**	=	***Primary* fiscal budget balance**	+	**Debt service**



Total, cyclical, and cyclically-adjusted fiscal budget balance

Total, cyclical, and cyclically-adjusted budget deficit (II)

- The importance of the notion of structural or cyclically-adjusted fiscal budget balance is that it provides a measure of the *stance* of discretionary *counter-cyclical* fiscal policy. More specifically, we say that discretionary fiscal policy is:

  - Expansionary: if the structural fiscal budget balance exhibits a *deficit*
  - Restrictive: if the structural fiscal budget balance exhibits a *surplus*
  - Neutral: if the structural fiscal budget balance is roughly equal to zero.

- However, as we noted above, both the sign and level of the budget balance will vary according to the phase of the business cycle the economy is in due to the workings of *automatic stabilizers*.

Total, cyclical, and cyclically-adjusted budget deficit (III)

- This happens *automatically* without any explicit policy decision by the government and helps reduce the severity of downswings and the explosiveness of upswings.

- The *total* fiscal budget deficit tends to decrease in upswings and increase in downswings due to the workings of fiscal automatic stabilizers.

- The combination of rising (falling) government expenditure and falling (rising) tax revenue in downswings (upswings) implies that the total budget deficit typically exhibits a *counter-cyclical* pattern.

Questions for self-evaluation:

1. Why do we expect the total fiscal budget deficit to exhibit a *counter-cyclical* pattern?

2. What is the difference between the total fiscal budget balance and the primary fiscal budget balance?

3. What do we mean when we say that discretionary fiscal policy is expansionary? And contractionary?

The debt-financed budget deficit (I)

- An increase in public spending does not normally induce sufficient additional tax revenue to wipe out the deficit. Likewise, a decrease in the average tax rate is not normally followed by a lower fiscal deficit (higher fiscal surplus). Thus, in both cases it will be necessary to issue new government bonds to cover the *gap* between public expenditure and tax revenue.

- If an economy exhibits a systematic fiscal budget deficit, the stock of government debt will mount every year. By contrast, the government debt-to-GDP ratio may increase or decrease over time depending on the size of fiscal budget deficits and the rate of growth of income.

The debt-financed budget deficit (II)

- In what follows, we assume that government bonds represent net wealth as far as the private sector is concerned. For the time being, we also assume that the Treasury *cannot* borrow from the Central Bank. Thus, the budget identity of the *Treasury* is:

$$\underbrace{G + iB}_{\text{Uses of funds}} \equiv \underbrace{T + \Delta B}_{\text{Sources of funds}} \qquad (1)$$

where i denotes the nominal interest rate on Treasury bonds, G-T denotes the *primary* budget deficit, B denotes the stock of outstanding government debt, and iB denotes the *debt service* of the government.

The debt-financed budget deficit (III)

- By re-arranging the budget identity, we can see that the budget deficit is equal to the change in the stock of government debt:

$$\Delta B \equiv (G - T) + iB \qquad (2)$$

Change in debt stock = primary budget deficit + debt service

- It is the current stock of outstanding government debt relative to national income Y that is of central concern. Thus, we define the *debt ratio* as $b=B/Py$ where P denotes the economy-wide price level and y denotes real income or aggregate output.

The debt-financed budget deficit (IV)

- The next step is to rewrite the Treasury's budget identity equation by dividing through by $P \bullet y$. This gives us the actual deficit to *GDP* ratio.

$$\frac{\Delta B}{Py} \equiv \frac{G-T}{Py} + \frac{iB}{Py} \equiv d + ib \qquad (3)$$

where the ratio of the primary budget deficit to national income is denoted as:

$$d \equiv \frac{G-T}{Py}$$

The debt-financed budget deficit (V)

- In order to pin down the determinants of the growth in the debt to *GDP* ratio, we begin with the definition of $b = B/Py$ and use the following approximation:

$$\Delta B \approx Py\Delta b + by\Delta P + bP\Delta y$$

and divide each side by $P \bullet y$ to give:

$$\frac{\Delta B}{Py} = b\frac{\Delta Py}{Py} + b\frac{\Delta yP}{Py} + \Delta b\frac{Py}{Py} = b\pi + b\gamma_y + \Delta b \quad (4)$$

where we write down the growth rate of prices or the inflation rate as π and γ_y denotes the growth rate of real income.

The debt-financed budget deficit (VI)

- Equating expressions (3) and (4) above and using $r = i - \pi$ where *r* is the *real* interest rate, we get the following expression for the *change in the debt-to-GDP ratio*:

$$\Delta b = d + (\underbrace{i - \pi}_{r} - \gamma_y)b = d + (r - \gamma_y)b \quad (5)$$

- Equation (5) provides a powerful way of understanding the *four* key determinants of the growth of the debt-to-*GDP* ratio:
  - The *primary* deficit ratio, *d*
  - The *real* interest rate, *r*
  - The growth of *real* GDP, γ_y
  - The current ratio of government debt to GDP, *b*

The debt-financed budget deficit (VII)

- Equation (5) allows us to identify the following two scenarios:

  – Scenario A: The real interest rate *exceeds* the growth rate ($r > \gamma$). The debt-to-GDP ratio rises unless d is negative, i.e., unless there is a large enough primary budget surplus. Interest payments on debt rise faster than GDP so that servicing the debt pushes on the debt burden unless the primary budget surplus is large enough.

  – Scenario B: The real interest rate *falls short* of the growth rate ($r < \gamma$). To the extent that real output growth reduces the impact of interest payments on the debt burden even a not too large primary deficit may be consistent with a constant ratio of debt-to-GDP.

Domar, E. D. (1944). The 'Burden of the Debt' and the National Income, *American Economic Review*, 34(4): 798-827.

The debt-financed budget deficit (VIII)

- The government's *inter-temporal budget identity* can also be interpreted as its solvency constraint or as the requirement for the absence of *default risk* on its debt. In eq. (5) above, we assume that there is a positive government debt ($b > 0$) and focus on the conditions necessary for b to decrease or remain constant over time also known as the *debt sustainability condition* ($\Delta b \leq 0$):

$$b \leq \frac{-d}{r - \gamma_y} \tag{6}$$

- Expression (6) above says that, for *long-run sustainability* with a given real interest rate that exceeds the long-run growth rate, there must be a large enough *primary fiscal surplus* ($d < 0$) if the debt ratio is, at least, to remain constant.

The debt-financed budget deficit (IX)

- The financial solvency of a country is often reflected in the *risk premia* on its treasury bonds. Data on risk premia on government debt for OECD countries can be found at:

  https://tradingeconomics.com/indicators

- However, if a country issues its own currency there is another source of funds for the Treasury: purchase of treasury bonds by the CB or *debt monetization*. Monetization of public and private debt may be the only way governments can stimulate additional aggregate spending when short-term nominal interest rates are at their 'zero-lower bound' and the Treasury is heavily indebted.

Credit ratings attached to bonds issued by private and public organizations by the 'big three' credit rating agencies

Investment grade

Junk bonds

Moody's		S&P		Fitch		
Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	
Aaa	P-1	AAA	A-1+	AAA	A1+	Prime
Aa1		AA+		AA+		High grade
Aa2		AA		AA		
Aa3		AA–		AA–		
A1	P-2	A+	A-1	A+	A1	Upper Medium grade
A2		A		A		
A3		A–	A-2	A–	A2	
Baa1		BBB+		BBB+		Lower Medium grade
Baa2	P-3	BBB	A-3	BBB	A3	
Baa3		BBB–		BBB–		
Ba1	Not Prime	BB+	B	BB+	B	Non Investmentgrade speculative
Ba2		BB		BB		
Ba3		BB–		BB–		
B1		B+		B+		Highly Speculative
B2		B		B		
B3		B–		B–		
Caa		CCC+	C	CCC	C	Substantial risks
Ca		CCC				Extemely speculative
C		CCC–				In default with little prospect for recovery
/		D	/	DDD	/	In default
/				DD		
/				D		

The debt-financed budget deficit (X)

- The flow diagram below shows the debt sustainability ‘feedback loop’. The dynamics of government debt and GDP growth can be unstable and constitute a positive feedback mechanism.

- An increase in *b* owing to, say, an increase in real interest rates may result in a downgrading of government debt by credit rating agencies which leads, in turn, to a decrease in the market price of the debt as debt holders try to sell it.

- A decrease in the market price of government debt is tantamount to an increase in its risk premium. The latter raises the nominal rate of return on bonds which may lead to a further increase in *b*.

Debt sustainability ‘feedback loop’ (I)

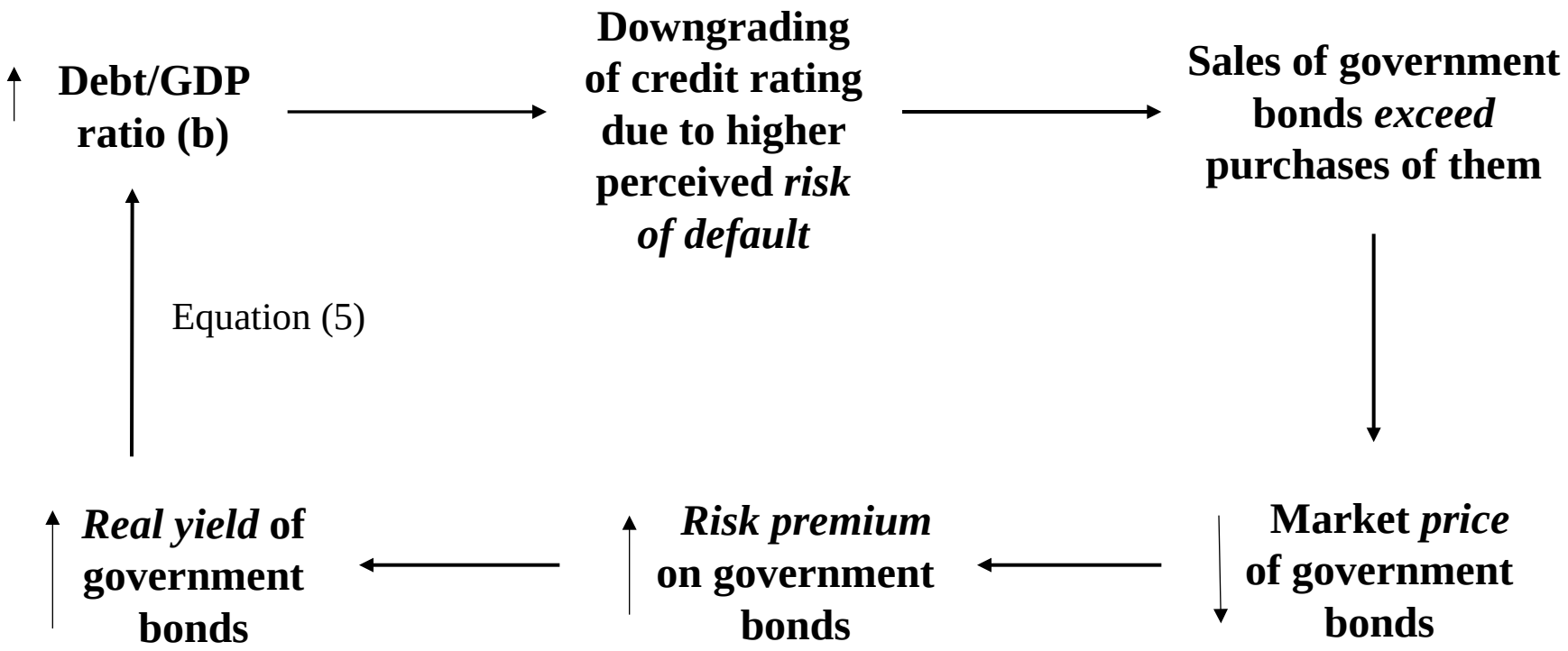
The **nominal rate of return of a fixed-income financial asset** (bond) can be broken down into the nominal rate of return of a risk-free asset *i* (e.g. banks’ reserves at the Central Bank) and a risk premium whose size depends on the risk of default perceived by investors. The nominal rate of return is calculated as the ratio of the Coupon or regular fixed payment that bondholders receive to the current market price of the bond.

$$R_t = i_t + \mu_{F,G} = \frac{Coupon}{p_t}$$

The **risk premium of the government debt of eurozone countries** is calculated as the difference between the nominal yield of the ten-year government bond of country X and the nominal yield of a German government bond with the same maturity period.

Risk premium of Eurozone country X 10-year government bond = **Nominal yield of Eurozone country X 10-year government bond** - **Nominal yield of Germany’s 10-year government bond**

Debt sustainability 'feedback loop' (II)



Policy implication: To short-circuit this *destabilizing* (positive) mechanism governments must set up institutional devices (e.g., independent fiscal authority) to monitor the evolution of public finances and ensure that *corrective* measures are implemented when 'b' becomes too large.

Questions for self-evaluation:

1. When does a Treasury need to issue government debt? Why?

2. What is the difference between the ‘uses’ and ‘sources’ of funds in the budget identity of the Treasury?

3. Under what circumstances will the government need to run a large enough primary budget surplus to prevent the debt-to-GDP ratio from increasing? Why?

Functions of Central Banks

- Bank of the Treasury: The Treasury has an account at the CB and, in the past, it was also able to borrow from the CB.
- Bank of the banks: Banks hold deposits at the CB known as primary reserves.
- Clearing house: electronic system for the settlement of all types of monetary transactions across economic agents.
- Lender-of-last resort for the banking system: short-circuiting of bank panics and financial crisis by providing liquidity.
- Macroeconomic stabilization: monetary policy via setting short-term interest rates.

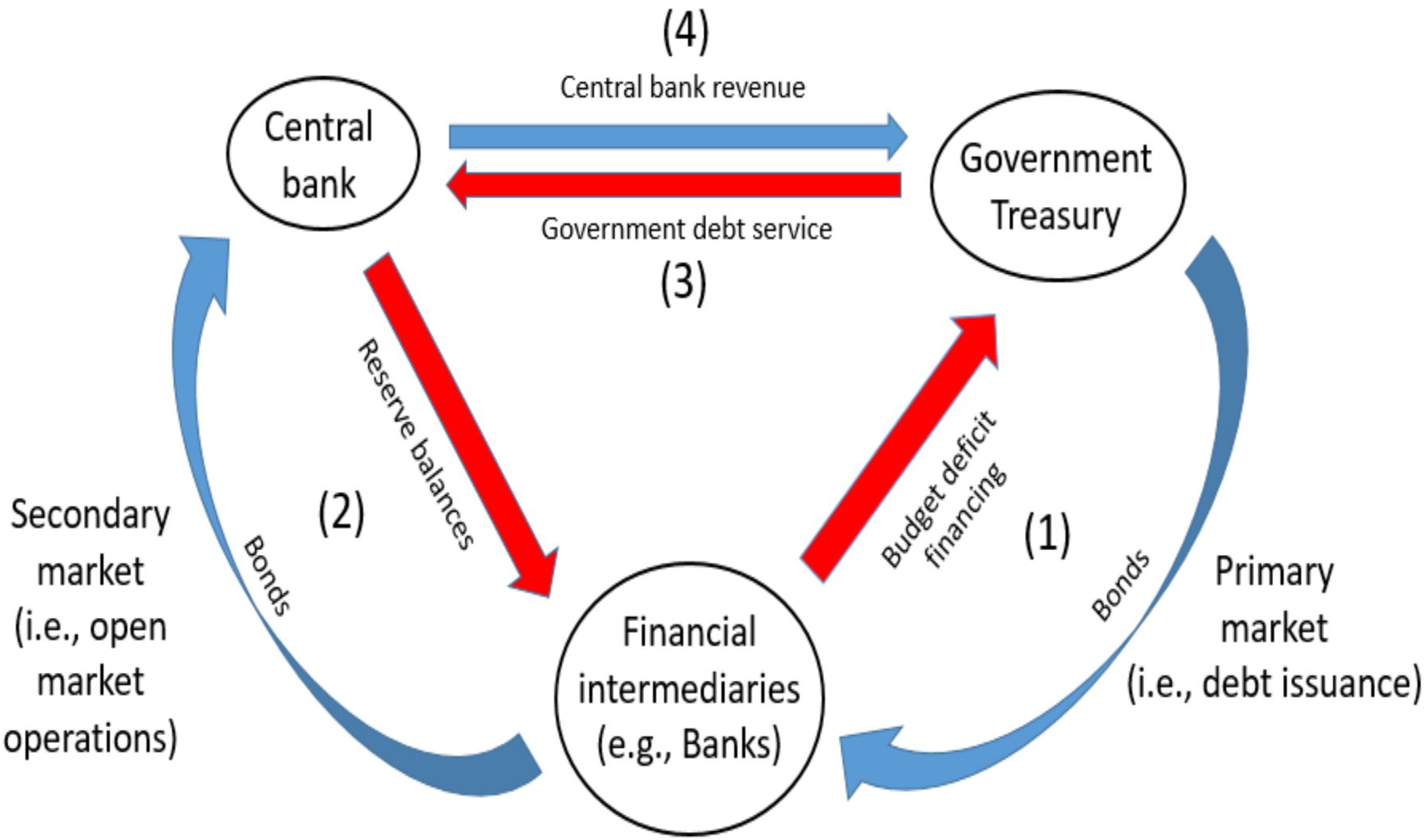
The consolidated balance of the public sector and debt monetization (I)

- To analyse the implications that stem from the monetization of public and private debt by the CB (i.e., the purchase of debt by the CB) we assume that the latter adopts a 'floor system'.

- In chapter 5, we will argue that the adoption of a 'floor system' allows CBs to *simultaneously* set the overnight nominal interest rate in the inter-bank market *and* the size of the monetary base.

- The purchase of debt by the CB will lead to the creation of bank reserves and, hence, to an *expansion* of the monetary base. The evolution of the money stock *M* (bank deposits and currency in circulation) depends on the evolution of aggregate demand.

Government debt monetization



The 'mechanism' through which government debt may be 'monetized'

- Let us denote by: $\dot{i}$ = nominal interest rate at which banks' reserves (i.e. deposits) at the Central Bank (CB) are remunerated.

  μ_G = risk premium on government debt

  $\mu_G + \dot{i}$ = Nominal rate of return on government bonds

- First, in the flow chart above the Treasury issues bonds to finance the fiscal budget deficit in the primary market. The bonds are initially purchased by commercial banks (**Stage 1**) who then sell them on to the CB in the context of open market operations (**Stage 2**).
- Second, the CB receives from the Treasury a stream of 'interest' payments associated to its portfolio of government bonds (**Stage 3**). The latter are a source of income for the CB. However, at the end of the year all CB revenue is transferred back to the Treasury as a result of the *consolidation* of balance sheets across the 'public sector' (Public sector = Central Bank + Treasury) (**Stage 4**).
- Last, the former means that for every € of the budget deficit financed by issuing government bonds and subsequently purchased by the CB the sole component of the total nominal rate of return on them that 'leakages' to the private sector (i.e., banks) is the nominal rate of return at which the CB remunerates banks' reserves at the CB and which were initially issued when the CB paid banks for the purchase of bonds. Hence, μ_G does return to the Treasury in the form of CB revenue which implies that the former 'saves' μ_G on each € raised by issuing government bonds thereby reducing its debt service.

$$R_t = i_t + \mu_t$$

Nominal rate of return of a government bond

Nominal rate of interest at which bank reserves at the Central Bank are remunerated

Risk premium on government bonds (It returns to the Treasury)

It is a leakage; it represents the net cost to the Treasury of issuing bonds when they are monetized by the Central Bank

The consolidated balance of the public sector and debt monetization (II)

- Let's present the budget identity of the *Treasury* when we allow for changes in the size of the monetary base (*H*):

Nominal rate of return or yield on government bonds

$$\underbrace{G_t + (\mu_G + i_{t-1}) D_{G,t-1}}_{\text{Uses of funds}} = \underbrace{T_t + \Delta D_{G,t} + RCB_t}_{\text{Sources of funds}} \qquad (1)$$

where μ_G denotes the risk premium on public debt, $(\mu_G + i_{t-1}) D_{G,t-1}$, denotes the debt service of the Treasury, *RCB* denotes revenue of the CB, *i* denotes the overnight inter-bank nominal interest rate, and D_G denotes the stock of outstanding public debt expressed in nominal terms.

The consolidated balance of the public sector and debt monetization (III)

- In a similar fashion, the budget identity of the *Central Bank* can be expressed as:

Stream of interest payments

$$\Delta D^{M}_{G,t} + \Delta D^{M}_{F,t} + RCB_t = (\mu_G + i_{t-1}) D^{M}_{G,t-1} + (\mu_F + i_{t-1}) D^{M}_{F,t-1} - CBRII_t + \Delta H_t \quad (2)$$

$$CBRII_t = i_{t-1}\left(\lambda^{M}_{G} D_{G,t-1} + \lambda^{M}_{F} D_{F,t-1}\right) \quad (3)$$

CB's portfolio of public and private debt

$$\Delta H_t = \lambda^{M}_{G} \cdot \Delta D_{G,t} + \lambda^{M}_{F} \cdot \Delta D_{F,t} \quad (4)$$

The consolidated balance of the public sector and debt monetization (IV)

- In the previous expression, *CBRII* denotes the flow of interest payments by the CB to reserve holders, $D^M_{G,t-1}$ and $D^M_{F,t-1}$ denote respectively the stock of public and private debt purchased by the CB, μ_F denotes the risk premium on private debt, λ^M_G and and λ^M_F denote respectively the share of public and private sector total outstanding debt purchased by the CB.

- Massive purchases of debt by the CB will lead to a substantial expansion of *H* so that, if the CB wishes to keep the overnight nominal interest rate constant, it will need to adjust the deposit rate and remunerate banks' reserves at the *target* overnight nominal interest rate.

The consolidated balance of the public sector and debt monetization (V)

- Inserting expressions (2), (3) and (4) into (1), dividing through by nominal GDP, and re-arranging, we have that the change in the stock of public debt relative to Y becomes:

$$\frac{\Delta D_{G,t}}{Y_{t-1}} = \Delta b_t = d_t + (1-\lambda_G^M)\,\mu_G\, b_{G,t-1} + i_{t-1} b_{G,t-1} - \mu_F\, \lambda_F^M\, b_{F,t-1} \quad (5)$$

where $d_t = (G_t - T_t)/Y_{t-1}$ denotes the primary fiscal budget deficit relative to nominal GDP, b_F denotes the ratio of total domestic private sector debt to nominal GDP, and b_G denotes the ratio of total public debt to nominal GDP.

- As we can see in (5), the purchase of private and public debt ($\lambda > 0$) reduces the value of the left-hand side of the equation.

The consolidated balance of the public sector and debt monetization (VI)

- In particular, if we differentiate (5) with respect to λ_G^M and λ_F^M we get:

$$\frac{\partial \Delta b_t}{\partial \lambda_G^M} = -\mu_G b_{G,t-1} < 0 \qquad (6)$$

$$\frac{\partial \Delta b_t}{\partial \lambda_F^M} = -\mu_F b_{F,t-1} < 0 \qquad (7)$$

- Thus, an *increase* in the CB's holdings of public and private debt will cause a *decrease* in the public debt-to-GDP ratio.

- This is because the purchase of public and private debt does generate revenue for the CB. When this revenue is *transferred* to the Treasury at the end of the year the total fiscal budget deficit will be *cut down* if the primary budget deficit remains constant.

The consolidated balance of the public sector and debt monetization (VII)

- Next, a government can take advantage of a decrease in its debt service by *implementing an expansionary fiscal policy*, namely, an increase in the structural fiscal budget deficit to increase the level of aggregate expenditure in the economy.

- This result underlies the claim that, if a sovereign nation issues its own currency, the government can always fund a rise in the level of aggregate expenditure *via* monetization of government debt as originally posited in Abba Lerner's 'Functional Finance' approach.

Lerner, A. P. (1943). Functional Finance and the Federal Debt, *Social Research*, 10(1/4): 38-51.

The consolidated balance of the public sector and debt monetization (VIII)

- However, the largest impact on the level of aggregate expenditure is likely to stem from the *compression of risk premia* on different types of public and private debt with long maturity periods:

- The nominal rate of return of a bond R_t can be expressed as:

$$\downarrow R_t = i_t + \downarrow \mu_{F,G} = \frac{Coupon}{\uparrow p_t}$$

  where the coupon is the regular payment received by bond-holders.

- When the CB purchases bonds in the secondary market the demand for bonds increases thus pushing the market price of bonds *upwards*. As p_t increases, R_t decreases. However, since i_t is set by the CB, the decrease in R_t will be entirely due to an *equivalent decrease* in μ_t.

The consolidated balance of the public sector and debt monetization (IX)

- The compression of risk premia on *private* debt may help reduce borrowing costs for households and firms thereby incentivizing them into purchasing consumption goods and investment goods, respectively.

- However, it will also reduce the revenue generated by the CB by purchasing private debt through open market operations.

$$\frac{\partial \Delta b_t}{\partial \mu_F} = -\lambda_F^M b_{F,t-1} < 0 \qquad (9)$$

- This means that the net impact on the Treasury's fiscal budget balance of the monetization of private debt is *ambiguous*.

The consolidated balance of the public sector and debt monetization (X)

- Last, the compression of risk premia on government bonds will further alleviate the Treasury's debt service. By differentiating (5) above with respect to μ_G, we get:

$$\frac{\partial \Delta b_t}{\partial \mu_G} = \left(1 - \lambda_G^M\right) b_{G,t-1} > 0 \qquad (10)$$

- Thus, a decrease in μ_G brings about a *decrease* in b_t that could enable the government to expand the primary fiscal budget deficit further.

- Wrapping up, a CB can reduce the debt service of the Treasury in a *direct* fashion by purchasing public debt from financial intermediaries and generating revenue out of it, or *indirectly*, by compressing μ_G, or both.

Questions for self-evaluation:

1. What is debt monetization? Why may Central Banks want to monetize government debt?

2. What will be the impact on the ‘monetary base’ of the purchase of public and private debt by the Central Bank? Why?

3. How does the Central Bank generate income by purchasing private and public debt? How can the Treasury reduce its debt service by letting the Central Bank purchase private and public debt?

4. What is the likely impact on risk premia of private and public debt of debt monetization? Why?

The *reformed* SGP (I)

- The 'Stability and Growth Pact' (SGP) is the legal framework that seeks to ensure *sustainable* public finances in the interest of the stability of the Economic and Monetary Union.

- The legal basis of SGP is provided by Articles 121 and 126 of the Treaty on the Functioning of the European Union (TFEU).

- Article 126.1: 'Member states shall avoid excessive government deficits'.

- Article 126.2: 'The Commission shall monitor the development of the budgetary situation and of the stock of government debt in the Member States with a view to identifying gross errors'.

The *reformed* SGP (II)

- According to Art. 126.1 the European Commission shall examine compliance with budgetary discipline on the basis of two criteria:

  – whether the ratio of the planned or actual **fiscal budget deficit** to GDP *exceeds* a reference value or, alternatively, the excess over the reference value is exceptional and temporary and the ratio remains close to the reference value.

  – whether the **ratio of government debt to GDP** *exceeds* a reference value, unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace.

The *reformed* SGP (III)

- The *reference values* were specified in a Protocol on the 'excessive deficit procedure' annexed to the Treaties:
  - 3 percent for the deficit-to-GDP ratio, and
  - 60 percent for the debt-to-GDP ratio

- The SGP included *sanctions* for the Member States who fail to put into practice the recommendations of the European Council related to an excessive fiscal budget deficit:
  - To invite the European Investment Bank to reconsider its lending policy towards the Member State concerned.
  - To require the Member State concerned to make a non-interest-bearing deposit of an appropriate size with the Union until the excessive deficit has, in the view of the Council, been corrected.
  - To impose fines of an appropriate size.

The *reformed* SGP (IV)

- The 'New Consensus in Macroeconomics' discussed in chapter 3 provides the *theoretical foundations* for SGP. In particular, the NCM presupposes that:

  - Cost-push shocks cancel each other out in the long run so that inflation is essentially of the *demand-pull* variety. This implies that inflation tends to rise in an economy when the output-gap is positive and vice-versa.

  - There is *no trade-off* between inflation and unemployment in the long run (i.e., the long-run Phillips curve is vertical).

  - The Central Bank (e.g. ECB) can control the inflation rate in the medium term by inducing changes in output-gaps *via* changes in interest rates.

The *reformed* SGP (V)

- What is the rationale for the SGP? The premise is that Member States with excessive fiscal budget deficits or large debt-to-GDP ratios may generate *negative externalities* to the other Member States in the form of *higher* inflation and real interest rates.

- For one thing, an excessive budget deficit in a Member State may induce higher inflation in its own economy if its output-gap is positive and large. This may, in turn, lead to *higher average inflation* in the Euro-zone and prompt the ECB to raise nominal interest rates.

The *reformed* SGP (VI)

- But higher across-the-eurozone nominal interest rates may affect Member States with lower-than-average inflation *negatively* by inducing higher real interest rates in their economies thus reducing investment and, possibly, long-run economic growth.

- Similarly, high debt-to-GDP ratios in some Member States may translate into *higher risk premia* on public and private debt for all Member States if financial market participants consider that their high levels of debt *are unsustainable in the long run*.

The *reformed* SGP (VII)

- In particular, the argument is that investors may require *higher real yields* on (private or public) debt denominated in euros to compensate for a higher risk of default of some Member States' public debt.

- Why may the 'risk of default' of debt issued by disciplined firms and governments (i.e., with low fiscal budget deficits and public debt-to-GDP ratios) rise if one or several eurozone economies exhibit high public debt-to-GDP ratios?

- The argument is that, if a Member were to default on its debt, it would have to be 'bailed out' by the rest of eurozone countries thus raising their budget deficits and debt-to-GDP ratios.

The *reformed* SGP (VIII)

- More specifically, if a Member State had to be 'bailed out' by other Member States, all of them would need to issue more debt to raise funds aimed at 'bailing out' the former thus *raising the average debt-to-GDP ratio across the Eurozone*.

- Yet this could potentially raise risk premia on private and public debt across the Eurozone.

- Last, higher risk premia on debt also implies higher *real interest rates* across the Eurozone thus potentially reducing:
  - private investment, and
  - the price competitiveness of Euro-zone firms vis-à-vis firms in the rest of the World due to higher financial costs.

The *reformed* SGP (IX)

- The (reformed) SGP consists of two main building blocks: the *preventive* arm and the *corrective* arm. The revised rules on the preventive and corrective arms entered in force in April 2024.

- The introduction of nation-specific medium-term fiscal plans is the main feature of the *preventive arm*, requiring Member States to articulate their fiscal, reform, and investment commitments over a *four or five-year horizon*.

- The main innovation is the establishment of one single *country-specific operational indicator* to serve as a multi-annual fiscal path: the 'growth of net expenditure' where NE denotes public expenditure after making certain exclusions.

The *reformed* SGP (X)

- In order to establish a multi-annual NE rule, the Commission will propose a **reference trajectory** for each Member State in breach of the debt/deficit thresholds based on country-specific debt sustainability assessments.

- In turn, the **reference trajectory** will serve as the starting point for negotiations between the Commission and the concerned Member States for the establishment of a *binding NE path* that is expected to guarantee a plausible reduction of government debt at the end of the trajectory period.

- The Commission initiates the planning process by assessing for each Member State if government debt exceeds 60% of GDP and if the government deficit exceeds 3% of GDP

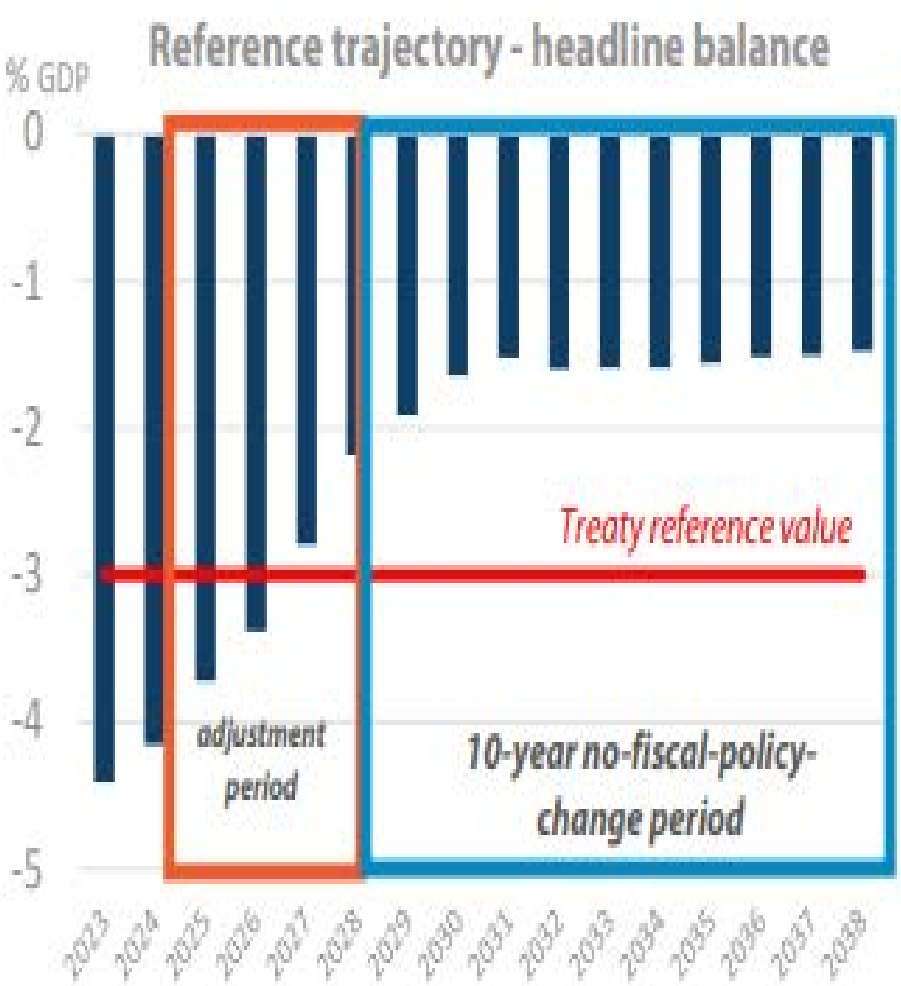
The *reformed* SGP (XI)

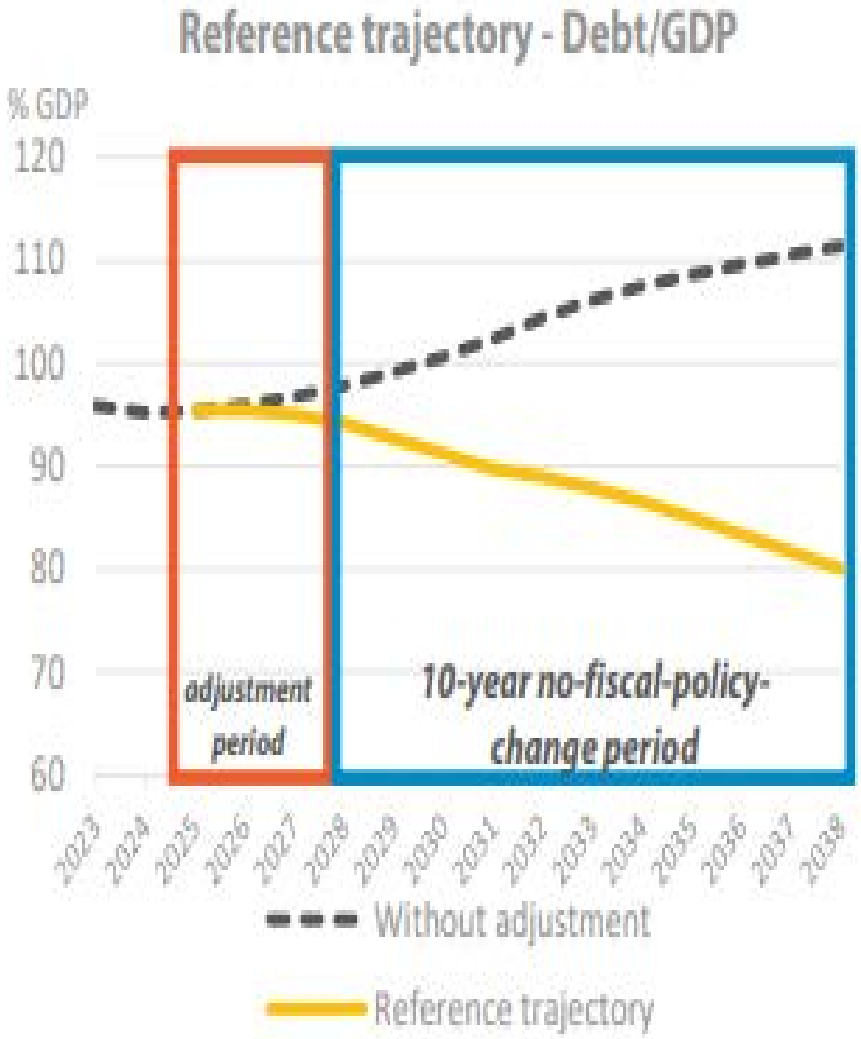
- When a Member State is in breach of the 3% deficit limit, its expenditure path should be consistent with the requirement to have a *minimum annual structural adjustment of 0.5% of GDP.*

- For debt-to-GDP ratios exceeding 90%, a minimum annual average reduction of 1 percentage point of GDP is mandated.

- For debt-to-GDP ratios between 60% and 90%, the required average reduction is 0.5 percentage points of GDP.

- The Figure below shows a hypothetical fiscal adjustment path for a Member State that is in breach of the deficit or debt limits.


Reference trajectory - headline balance
% GDP
0
-1
-2
-3
-4
-5
Treaty reference value
adjustment period
10-year no-fiscal-policy-change period
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038


Reference trajectory - Debt/GDP
% GDP
120
110
100
90
80
70
60
adjustment period
10-year no-fiscal-policy-change period
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
Without adjustment
Reference trajectory

The *reformed* SGP (XII)

- The *corrective arm* process begins with the Commission issuing a report on excessive deficit that is then studied by the Council. This process is known as 'Excessive Deficit Procedure' (EDP).

- The Member State reports on actions taken in response to the EDP. The Council assesses whether the Member State has taken effective actions. In cases of non-compliance, sanctions may be imposed, including fines of up to 0.05% of GDP for euro-area Member States.

- Sanctions can be intensified if the excessive deficit persists. The process concludes with the abrogation of sanctions and the EDP once the issue is resolved.