CHARTA LEARNING · LESSON NOTES

Fiscal and monetary policy

CFA Level I · Economics

You will learn: Explain the aims, tools and limits of fiscal policy (government spending and taxes) and monetary policy (the central bank's price and supply of money), compute the multipliers and the neutral rate, and judge what happens when both are used together.

Running example: Examples use made-up figures, such as a small economy with GDP of 1,000.

1. Fiscal policy: budget, stance and the multiplier

- Fiscal policy is the use of government spending and taxes to steer the economy. Aims: steady growth, stable prices, fairer incomes. Spending includes purchases and transfers (payments like benefits). Easy policy lifts demand; tight policy cools it.
- Spending above tax is a budget deficit, below it a surplus. Borrowing to cover deficits piles up as the national debt. The primary balance is the balance before interest.
- Expansionary policy (spend more, cut taxes) when output is below potential; contractionary when the economy overheats. Automatic stabilisers (benefits rise, taxes fall in a downturn) happen with no vote; a new law is a discretionary change.
- Spending is re-spent in rounds, so the effect on output is a multiple. MPC (marginal propensity to consume) is the share of extra income spent; t is the tax rate.
- A spending rise usually beats a tax cut of the same size, because part of a tax cut is saved.

Multiplier = 1 ÷ [1 − MPC × (1 − t)]

BUDGET AND MULTIPLIER (GDP 1,000; MPC 0.8, T = 25%, PACKAGE 40)

Deficit; debt	spending 280 (24 interest) − tax 240; debt 600	**40 = 4.0% of GDP; 60% of GDP; primary balance −16**
Multiplier	1 ÷ [1 − 0.8 × 0.75] = 1 ÷ 0.40	**2.5**
Spending up 40	40 × 2.5	**GDP +100**
Tax cut of 40	40 × 0.8 × 2.5	**GDP +80**

Watch out: Mixing deficit and surplus; forgetting that a tax cut works only through spending.

2. Limits on fiscal policy

- Three lags: recognition (data arrive late and get revised), action (the plan is debated and passed), impact (contracts, building, cheques take time). Together they can exceed a year, so help may arrive after the recovery began and add fuel to it.
- Crowding out: borrowing to fund a deficit raises demand for loans and interest rates, so firms invest less. Strongest near full capacity; small in a deep slump with spare savings.
- Ricardian equivalence: households know borrowing means higher taxes later, so a fully Ricardian household saves the whole tax cut and spends nothing extra. In real life it holds only partly.
- Debt ratio = debt ÷ GDP. It rises if interest exceeds growth (more so at high debt); a primary surplus pulls it down. Judge debt by interest against growth and the primary balance, not size alone.

Change in debt ratio ≈ (interest rate − growth) × debt ratio − primary surplus

EXAMPLES 2, 3: LAGS, RICARDIAN, DEBT

Lags in months	6 + 9 + 9; recovery began at month 12	**24 months: lands 12 months late**
Tax cut of 100, debt at 5% for 10 years	100 × 1.05^10; 162.89 ÷ 1.05^10	**162.89; worth 100 today**
Debt 100% of GDP, interest 5%, growth 2%	(5% − 2%) × 100% = 3.0 pts; less primary surplus 1.0	**+2.0 pts**
Surplus to hold the ratio steady		**3.0% of GDP**

Watch out: Treating crowding out as always large.

3. The central bank and its main tools

- A central bank issues currency, is banker to government and banks, oversees payments and often banks, and can be lender of last resort. Its best known job is monetary policy: the cost and supply of money. Main goal: price stability (slow, predictable price rises), often with employment and financial safety.
- Most set an inflation target (such as 2% a year, or a band). Operational independence: the bank chooses its tools. Target independence: it also sets the target. Independence makes the target credible and keeps inflation expectations anchored.
- Policy rate: the rate on very short bank loans; other rates tend to follow it. Open market operations (buying and selling bonds) make the market rate hit the target: buying bonds adds reserves and rates fall; selling reduces reserves and rates rise.
- Reserve requirement: the share of deposits banks must keep rather than lend. Lending is spent and redeposited, creating money each round. The largest possible rise in deposits is new reserves × the multiplier, 'up to' because banks may hold spare reserves.

Money multiplier = 1 ÷ reserve requirement. Deposits created = new reserves × multiplier

EXAMPLE 4, 5: DEPOSIT OF 1,000, RESERVE REQUIREMENT 10%

Rounds of lending	keep 100, lend 900; keep 90, lend 810; keep 81, lend 729	**900, 810, 729 ...**
Total deposits	1,000 × 1 ÷ 0.10	**10,000 (9,000 new money)**
Requirement raised to 20%	1 ÷ 0.20; 1,000 × 5	**multiplier 5; deposits 5,000**
Central bank buys 50 of bonds (multiplier 10)	50 × 10	**up to 500 of new deposits**

4. Unconventional tools and the limits of monetary policy

- Quantitative easing (QE), when the policy rate is near zero: the bank creates reserves and buys long-dated bonds in big amounts. Prices rise, yields fall, longer rates fall, so mortgages and business loans get cheaper.
- Forward guidance: the bank says where it expects to keep rates. A longer rate is roughly the average of expected short rates, so a believed promise lowers it without moving the policy rate. If markets do not believe it, the tool fails.
- Limits: long and variable lags (act on forecasts); supply shocks such as oil, which higher rates cannot fix; a target can leave out jobs and asset prices; one rate for every region is blunt.
- Zero lower bound: the nominal rate cannot go much below zero because people would hold cash. If prices fall, the real rate (nominal − inflation) rises, so falling prices are dangerous and QE and guidance are used.
- Liquidity trap: people hoard cheap money. Weak transmission: weak banks do not lend, and high debts and low confidence blunt borrowing, so after a crisis rate cuts did less than expected.

EXAMPLES: QE, GUIDANCE, ZERO LOWER BOUND

QE: 10-year bond pays 100, yield 4% to 3%	100 ÷ 1.04^10; 100 ÷ 1.03^10	**67.56 to 74.41, gain 6.85**
Guidance: policy rate 0.5%, expected 2.5% next year	(0.5 + 2.5) ÷ 2	**2-year rate 1.5%**
With a believed promise to hold 0.5%	(0.5 + 0.5) ÷ 2	**2-year rate 0.5%**
Zero lower bound: inflation 2%; prices fall 1%	0 − 2; 0 − (−1)	**real rate −2%; +1% (3 points tighter)**

5. The neutral rate and combining the two levers

- The neutral rate neither speeds up nor slows the economy when growth is steady and inflation is at target. Policy rate above neutral: contractionary. Below: expansionary. At neutral: neither. What matters is the distance from neutral, not the level of the rate.
- Four combinations. Easy fiscal and easy monetary: output up, rates unclear. Tight and tight: output down, rates unclear. Tight fiscal and easy monetary: rates down, private spending up, output unclear. Easy fiscal and tight monetary: rates up, output unclear.
- Output is unclear in the mixed cases because it depends on which lever is stronger.
- They pull together in a deep slump; they pull apart when a big deficit meets a high policy rate to fight inflation, which keeps rates high and hurts private investment. On the exam, name the combination, then trace the effects.

> **Neutral rate = real trend growth + inflation target**

EXAMPLES 6, 7: TREND GROWTH 2.0%, TARGET 2.0%; FISCAL EFFECT ±1.0, MONETARY ±1.5 ON GROWTH

Neutral rate	2.0 + 2.0	**4.0%**
Policy rate 5.5%; 2.5%; 4.0%	1.5 above; 1.5 below; equal	**contractionary; expansionary; neutral**
Easy + easy; tight + tight	+1.0 + 1.5; −1.0 − 1.5	**+2.5; −2.5 points**
Tight fiscal + easy monetary; easy fiscal + tight monetary	−1.0 + 1.5; +1.0 − 1.5	**+0.5; −0.5 points**

Key takeaways

- Fiscal multiplier = 1 ÷ [1 − MPC × (1 − t)]; a spending rise beats a tax cut of the same size.
- Fiscal limits: three lags, crowding out, Ricardian equivalence, and the debt ratio, which rises when interest exceeds growth.
- Central banks aim for price stability; independence makes the target credible.
- Tools: policy rate, open market operations, reserve requirements, QE, forward guidance; money multiplier = 1 ÷ reserve requirement.
- Monetary limits: lags, supply shocks, zero lower bound, liquidity traps, weak banks.
- Neutral rate = real trend growth + inflation target; compare the policy rate to it and name the stance.

Quick check

1. MPC is 0.75 and the tax rate is 0%. What is the fiscal multiplier?
   Answer: 1 ÷ (1 − 0.75) = 4.
2. Reserve requirement 25%; banks gain 200 of new reserves. Largest rise in deposits?
   Answer: Multiplier 4, so 200 × 4 = 800.
3. Trend growth 1.5%, target 2%, policy rate 3%. What is the stance?
   Answer: Neutral 3.5%; 3% is below it: expansionary.

Summary notes for the Charta whiteboard lesson. Examples use made-up figures. Watch the full lesson at charta-learning.com.