

Cambridge AS & A Level · Economics 9708 · Notes

Money and banking

A2

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Read first: [Price stability](#), [Monetary policy](#)

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What you need to know

This topic builds on AS Price stability and Monetary policy. By the end of it you should be able to:

1. **Define money**, and explain its **functions** (what it does) and its **characteristics** (what makes something good at doing them).
2. **Define the money supply**, and tell narrow money from broad money.
3. **Explain the quantity theory of money**, $MV = PT$: what each letter means, what the theory predicts and why it may not hold.
4. **Explain what commercial banks do**:
 - take deposits (demand deposit accounts and savings accounts);
 - lend (overdrafts and loans);
 - hold a mix of assets and liabilities: cash, securities, loans, deposits and equity;
 - keep a **reserve ratio** and a **capital ratio**;
 - balance three objectives: **liquidity**, **security** and **profitability**.
5. **Explain what changes the money supply in an open economy**: credit creation by commercial banks and the **bank credit multiplier**, the central bank, government deficit financing, quantitative easing and the balance of payments.
6. **Evaluate policies to reduce inflation**: which suits which cause, and how effective each is likely to be.
7. **Explain the demand for money** with Keynes's **liquidity preference theory**.
8. **Explain how the rate of interest is determined**, by the **loanable funds theory** and by **Keynesian theory** (including the liquidity trap).

Understand it

What money is

Money is anything people generally accept in payment for goods and services and in settling debts. Notes and coins are money, but most money today is bank deposits, moved by card, transfer or phone.

Functions (what money does):

- **Medium of exchange:** you swap goods for money and money for goods, so you no longer need a **double coincidence of wants** (finding someone who has what you want **and** wants what you have), as barter does.
- **Unit of account** (measure of value): prices, wages and incomes are all written in money, so very different things can be compared and added up, as on a price-comparison website or in GDP.
- **Store of value:** money can be kept and spent later, so earning and spending need not happen on the same day.
- **Standard of deferred payment:** debts and future payments (a loan, a contract, paying for something in instalments) are agreed in money.

Characteristics (what makes an item work well as money): **acceptability** (people trust it and take it; forgeries threaten this), **durability**, **portability**, **divisibility** into small units, **homogeneity** (each unit the same), **limited supply** (scarce, so it keeps its value) and **recognisability** (hard to forge). A characteristic is not a function: "divisible" or "portable" never answers "what is a function of money?".

Inflation and money. High inflation erodes money first as a **store of value**: savings buy less each month, so people switch to goods, property, gold or a foreign currency. It also weakens money as a standard of deferred payment (lenders are repaid in money worth less), and in hyperinflation people stop accepting it. **Deflation** works the other way: money gains value just by being held, so people put off spending, and aggregate demand falls.

Liquidity is how quickly and easily an asset can be turned into cash without losing value. Cash is perfectly liquid; a bank deposit is very liquid; shares and bonds less so; a house or machine is illiquid. Most financial assets are more liquid than physical ones.

The money supply

The **money supply** is the total stock of money in an economy at a given time. Because different assets do different jobs, countries publish several measures:

- **Narrow money:** notes and coins in circulation plus the commercial banks' balances (reserves) at the central bank. This is money as a **medium of exchange**.
- **Broad money:** narrow money plus deposits held in banks, including savings deposits. This also counts money held as a **store of value**.

Different measures exist **because money has different functions**: the narrow one tracks money ready to spend, the broad one money held as wealth too.

The quantity theory of money

Irving Fisher's **equation of exchange** is

$$MV = PT$$

- M : the money supply (broad money, not just notes and coins);
- V : the **velocity of circulation**, the average number of times each unit of money is spent in a period;

- P : the average price level;
- T : the number (volume) of transactions in the period, or real output (then written $MV = PY$).

MV is total spending; PT is the value of everything sold. They are always equal, so as it stands the equation is an identity. It becomes a **theory** when two assumptions are added:

1. **V is constant**: how often money changes hands depends on payment habits (how often people are paid, how they pay), which change slowly.
2. **T is constant**: in the long run output is set by the economy's resources at full employment, not by the amount of money.

Then P moves **in proportion to M** : a 10% rise in the money supply causes a 10% rise in the price level. This is the **monetarist** view: inflation is caused by the money supply growing faster than output, so controlling the money supply controls inflation.

For example, with $M = \$200\text{bn}$, $V = 4$ and $T = 100\text{bn}$ transactions, $P = \frac{200 \times 4}{100} = 8$, an average price of \$8. If M rises to \$220bn (10%) with V and T unchanged, $P = \frac{220 \times 4}{100} = 8.8$ (\$8.80), also 10% higher.

When more than one thing changes, use the **rough rule**: % change in $P \approx$ % change in M + % change in V – % change in T . Money supply up 6%, velocity unchanged, output up 2%: the price level rises by about 4%.

What changes V . V rises when people hold less money for each dollar they spend: wages paid **more often** (weekly rather than monthly, so average balances are smaller), more use of cards and cash machines, higher interest rates (holding idle money costs more). It falls when people hold more money: paid less often, more uncertainty, very low interest rates.

Why the theory may not hold:

- **V is not stable.** It changes with financial innovation, interest rates and confidence; after the 2008 crisis and during quantitative easing, velocity fell sharply, so big rises in M caused little inflation.
- **T is not fixed** when there is spare capacity: extra money can raise output (Keynes), not just prices.
- **Causation may run the other way**: rising prices and incomes lead firms and households to borrow more, so banks create more money (P causes M).
- **M is hard to measure and control**: there are many measures, and banks create most money.
- Prices can rise for reasons that have nothing to do with money (cost-push from imported oil, a weaker currency).

Commercial banks

A **commercial (retail) bank** is a profit-making business that takes deposits from and lends to households and firms.

Deposit accounts (the bank's **liabilities**, since it owes the money to customers):

- a **demand deposit account** (current account): money can be withdrawn at any time and used to pay by card or transfer; usually little or no interest;

- a **savings account** (time deposit): pays interest, but notice may be needed before withdrawing.

Lending (the bank's main income):

- an **overdraft**: the customer can spend beyond the balance in a current account up to an agreed limit, paying interest only on the amount used; flexible, usually a high rate;
- a **loan**: a fixed sum for a set period, repaid in instalments with interest (a mortgage is a loan secured on a home).

A bank's balance sheet shows what it holds and owes. For example, in billions of dollars:

Liabilities	\$bn	Assets	\$bn
Demand deposits	180	Cash and balances at the central bank	15
Savings deposits	120	Securities (government bills and bonds)	60
Equity (shareholders' capital)	40	Loans and overdrafts	265
Total	340	Total	340

Assets run from most liquid (cash) to least liquid (loans), and from least profitable (cash earns nothing) to most profitable (loans earn the highest interest).

- **Reserve ratio** = $\frac{\text{cash and balances at the central bank}}{\text{deposits}}$: here $\frac{15}{300} = 5\%$. The bank must be able to pay customers who withdraw; the central bank may set a minimum.
- **Capital ratio** = $\frac{\text{capital (equity)}}{\text{assets, weighted by risk}}$: here, ignoring the risk weights, $\frac{40}{340} = 11.8\%$. Capital is the shareholders' money that absorbs losses if borrowers default, so a higher ratio makes a bank safer. Regulators set minimums.

Objectives. A bank wants:

- **liquidity**: enough cash to meet withdrawals at any time;
- **security**: loans and assets that will be repaid, without too much risk;
- **profitability**: a high return for shareholders, which comes mainly from lending.

These **conflict**: the most profitable assets (long loans to risky borrowers) are the least liquid and least secure. Holding lots of cash is safe but earns nothing. Banks that chased profit by lending to borrowers who could not repay, with too little capital, helped cause the 2008 financial crisis.

The central bank

The **central bank** (for example the Federal Reserve or the Bank of England) is not run for profit. It:

- issues notes and coins;
- is the government's bank, and manages its borrowing;

- is the bankers' bank: commercial banks hold reserves with it, and it is the **lender of last resort**, lending to banks that run short of cash;
- runs **monetary policy**: sets its interest rate (bank rate) and influences the money supply, usually to hit an **inflation target**;
- supervises and regulates the banks (reserve and capital ratios);
- holds the country's foreign currency reserves and can influence the exchange rate.

Credit creation and the bank credit multiplier

Banks know that only a small fraction of deposits is withdrawn on any day, so they lend most of each new deposit. The loan is spent, and the money is deposited in another bank, which lends most of it again. Each loan creates a new deposit, and deposits are money, so **banks create money**.

Suppose banks keep a reserve ratio of 20% and someone deposits \$5,000 of new cash. The first bank keeps \$1,000 and lends \$4,000; that is redeposited and \$3,200 is lent; then \$2,560, and so on. In the end:

$$\text{bank credit multiplier} = \frac{1}{\text{reserve ratio}} = \frac{1}{0.2} = 5$$

Total deposits rise by \$5,000 × 5 = \$25,000, of which \$20,000 is new lending. **Raising** the reserve ratio **lowers** the multiplier: doubling it from 5% to 10% halves the multiplier from 20 to 10.

This is the **maximum**. Less money is created when people keep some cash out of the banks (a **cash drain**), when banks hold more reserves than they need, when there are too few creditworthy borrowers or little demand for loans, and when the central bank tightens its rules.

What changes the money supply in an open economy

Cause	Money supply rises when...	Money supply falls when...
Commercial banks' credit creation	banks lend more: a lower reserve ratio, more confidence, more demand for loans	banks lend less or hold more reserves; people hold more cash outside the banks
The central bank	it buys government bonds from banks and the public (open market operations), cuts the required reserve ratio, cuts its interest rate (more borrowing)	it sells bonds, raises the reserve ratio or its interest rate
Government deficit financing	the government borrows from the central bank or the commercial banks to cover a budget deficit: new money or new bank deposits are created and then spent	the budget moves to surplus, or a deficit is financed by selling bonds to the non-bank public (existing money just moves from the public to the government and back, so the money supply is roughly unchanged)

Cause	Money supply rises when...	Money supply falls when...
Quantitative easing (QE)	the central bank creates new reserves to buy large amounts of government bonds and other assets	the central bank sells assets or lets them mature without replacing them (quantitative tightening)
The balance of payments	more currency flows in than out (a current account surplus, capital inflows, foreign borrowing): foreign currency is exchanged for domestic money and deposited	more currency flows out than in

The **total currency flow** is the net flow of money between domestic residents and foreign residents through the balance of payments. With a **fixed exchange rate**, a surplus forces the central bank to buy foreign currency with newly created domestic money, so the money supply grows unless it is "sterilised" by selling bonds.

Quantitative easing in steps: the central bank **creates** new reserves electronically → it **buys** long-term government bonds and other assets from banks and financial institutions → bond prices rise and long-term interest rates **fall** → banks hold more reserves and can lend more, and asset prices rise (people feel wealthier) → borrowing, **investment** and consumption **rise**, and the exchange rate may fall → AD and **real GDP rise**. QE is used when interest rates are already near zero and cannot be cut further.

The demand for money: liquidity preference

Keynes asked why people hold wealth as money (which earns no interest) rather than as bonds (which do). His answer is **liquidity preference**: the wish to hold assets in liquid form, for three motives.

- **Transactions motive**: money to pay for everyday spending between paydays. It depends on **income** (and the price level), and on how often people are paid: paid weekly, people need smaller average balances than paid monthly.
- **Precautionary motive**: money kept for unexpected spending, such as a repair or an illness. It also depends mainly on **income**, and rises when the future is more uncertain.
- **Speculative motive**: money held instead of bonds, while waiting for a better time to buy them. It depends on the **rate of interest** (below).

The first two are **active balances** (held to be spent) and do not respond to the interest rate; the speculative demand is **idle balances** and is interest-elastic. So the demand for money is

$$L = L_1(Y) + L_2(r),$$

where L_1 (transactions and precautionary) depends on income Y and L_2 (speculative) on the interest rate r . The **rate of interest is the reward for giving up liquidity**.

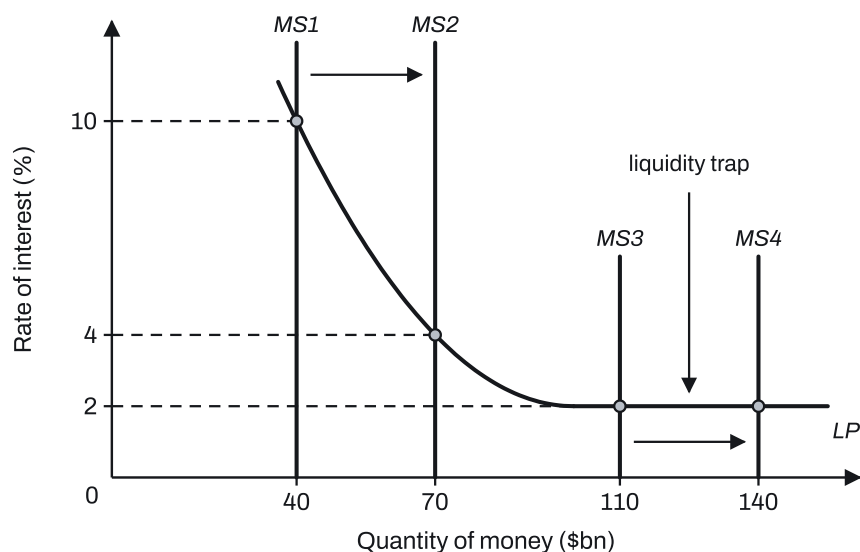
Bonds and interest rates. A bond pays a fixed sum each year, so its price and its yield move in **opposite** directions. A bond paying \$4 a year yields $\frac{4}{100} = 4\%$ if it costs \$100, but only $\frac{4}{125} = 3.2\%$ if its price rises to \$125, and 5% if its price falls to \$80.

- When interest rates are **high**, bond prices are low and people expect rates to fall (bond prices to rise), so they buy bonds now: they hold little idle money.
- When interest rates are **low**, bond prices are high and people expect rates to rise (bond prices to fall, a capital loss), so they hold money instead.

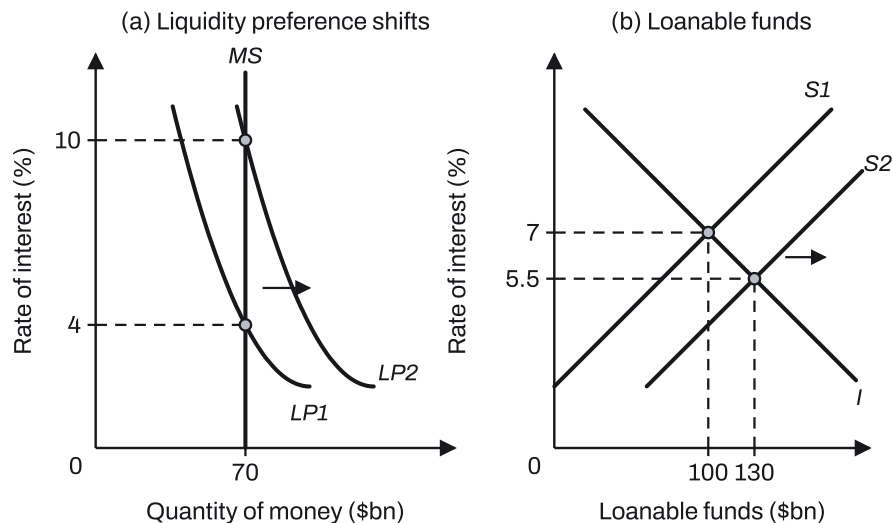
So the speculative demand, and the liquidity preference (LP) curve, **slopes down**: the lower the interest rate, the more money people want to hold.

Interest rates: Keynesian theory

In Keynesian theory the interest rate is set in the **money market**, where the demand for money (LP) meets the money supply (MS). The money supply is set by the central bank and banking system, so it is drawn **vertical** (it does not depend on the interest rate).



- **More money supply** (MS1 to MS2, for example after open market purchases or QE): at the old rate people hold more money than they want, so they buy bonds; bond prices rise and the interest rate **falls**, from 10% to 4%.
- **A shift of LP**: a rise in national income or in the price level raises the transactions and precautionary demand, so LP shifts **right** and the interest rate **rises** at a given money supply. More uncertainty does the same. Paying wages more often, or more use of cards, shifts LP **left** and lowers the rate.



The liquidity trap. At a very low interest rate (2% in diagram 1), everyone expects rates to rise and bond prices to fall, so people will hold **any** extra money rather than buy bonds: LP becomes **horizontal** (perfectly interest-elastic). An increase in the money supply (MS3 to MS4) then does **not** lower the interest rate, so it does not raise investment, output or the price level. Monetary policy is powerless and Keynes argued for **fiscal policy** instead. A liquidity trap is most likely in a deep slump: **low interest rates, low inflation and low growth** together.

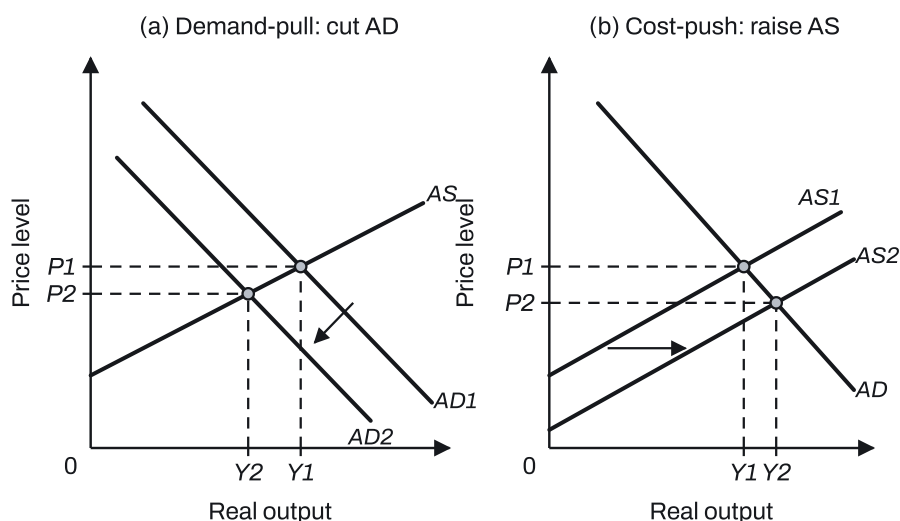
Interest rates: loanable funds theory

The older, classical view: the interest rate is the price of **loanable funds**, set where the **supply** of funds (mainly **saving**, which rises with the interest rate) meets the **demand** for funds (mainly **investment**, which falls as borrowing gets dearer; also government borrowing). In diagram 2(b), equilibrium is 7%. If households save more, supply shifts right and the rate falls to 5.5%; investment rises until saving and investment are equal again. So the interest rate keeps **saving equal to investment**.

Keynes's objection. Saving and investment are done by different people for different reasons: saving depends mainly on **income**, investment mainly on firms' **expectations** of profit. A rise in saving cuts spending and income, so it may not lower the interest rate and raise investment at all; the interest rate is set in the money market instead, by liquidity preference and the money supply.

Policies to reduce inflation

First **diagnose the cause**: demand-pull (AD growing faster than capacity), cost-push (rising wages, energy or import prices), or, in the monetarist view, the money supply growing faster than output. Then choose.



Monetary policy (usually run by an independent central bank aiming at an **inflation target**):

- **raise interest rates:** borrowing and mortgage repayments cost more and saving pays more, so consumption and investment fall; the exchange rate rises, so exports fall, imports rise and imported inputs get cheaper; AD shifts left (diagram 3a);
- **reduce the growth of the money supply:** sell government bonds (open market operations), raise the reserve ratio, stop or reverse QE; less credit, less spending;
- an **inflation target** (often 2%) that people believe **anchors expectations**: workers and firms set wages and prices expecting low inflation, which keeps inflation low.

Fiscal policy: higher direct taxes or lower government spending reduce AD, with a multiplier (diagram 3a).

Supply-side policies: raising productivity (training, investment in technology), more competition, more flexible labour markets and lower firms' costs shift AS right (diagram 3b). They cut inflation **and** raise output, so they suit cost-push inflation, but they take years.

How effective are they?

- **The cause matters.** Demand-side policy suits demand-pull inflation. Against cost-push inflation (an energy price shock), higher interest rates cut output and jobs while prices keep rising for a while: the economy suffers both.
- **Time lags:** interest-rate changes take a year or two to reach inflation.
- **Spending may not respond:** if confidence is high, or borrowing is at fixed rates, consumption and investment may be interest-inelastic.
- **Conflicts with other aims:** less growth and investment, more unemployment; a higher exchange rate hurts exporters and the current account; higher rates attract short-term capital ("hot money"); dearer government borrowing; falling house prices.
- **Policies can pull against each other:** a government that cuts taxes while the central bank raises rates weakens the effect.
- **Imported inflation** (world energy and food prices) is largely beyond domestic policy.

- **Credibility:** a trusted, independent central bank can lower inflation with smaller rate rises, because expectations fall too.
- **Contractionary fiscal policy** is slow to agree, unpopular, and cuts to spending on health or education can harm long-term growth.

Why not a 0% inflation target? For: stable prices make long-term planning easier, remove menu and shoe-leather costs, protect savers and people on fixed incomes, and keep exports competitive. Against:

- a target of 0% risks frequent **deflation**, when people delay spending, debts grow in real terms, profits and investment fall, and unemployment rises;
- with low inflation, nominal interest rates are low too, leaving the central bank little room to **cut** them in a recession before it hits zero (the liquidity trap);
- a little inflation lets **real wages** fall in declining industries without cutting money wages, which workers resist;
- price indices tend to **overstate** inflation (they miss quality improvements), so measured 0% may really be falling prices.

That is why most central banks aim for about 2%; some emerging economies choose 3–4% because their economies are growing fast and changing quickly.

Key facts and formulas

There is no formula list in the 9708 exam, so everything here is "Learn it".

Formula	Status
Quantity theory: $MV = PT$ (M money supply, V velocity of circulation, P price level, T volume of transactions)	Learn it
With V and T constant, P changes in proportion to M	Learn it
% change in $P \approx$ % change in M + % change in V – % change in T	Learn it
Bank credit multiplier = $\frac{1}{\text{reserve ratio}}$; maximum change in deposits = new deposit $\times$ multiplier	Learn it
Reserve ratio = $\frac{\text{cash and balances at the central bank}}{\text{deposits}}$	Learn it
Capital ratio = $\frac{\text{bank capital (equity)}}{\text{risk-weighted assets}}$	Learn it
Keynesian demand for money: $L = L_1(Y) + L_2(r)$; L_1 transactions and precautionary (income), L_2 speculative (interest rate)	Learn it

Formula	Status
Bond yield = $\frac{\text{fixed annual payment}}{\text{bond price}} \times 100$: bond prices and interest rates move in opposite directions	Learn it

How to do it

We tagged 71 questions for this topic, from March 2021 to March 2026 (65 different; 6 are repeats across paper variants): 54 multiple choice (Papers 1 and 3) and 17 Paper 4 essays. 7 of the essays have parts of two types, so the counts add up to 78.

Question type	Questions
Demand for money and interest rate determination (liquidity preference, liquidity trap, loanable funds)	21
Functions and characteristics of money; liquidity	16
Policies to reduce inflation and how monetary policy works	13
Quantity theory of money	11
Money supply: measures and causes of change, including QE	9
Commercial banks, central banks and credit creation	8

1. Demand for money and interest rate determination (21 questions)

17 multiple choice, 4 essays (12- or 13-mark parts in 2021–2022).

- Name the motive** from what drives it: everyday spending → transactions; emergencies → precautionary; waiting to buy bonds, or anything about the interest rate → **speculative**. The motive that explains the downward slope of LP is the speculative motive.
- Active or idle?** Transactions and precautionary balances are active and depend on income, not the interest rate; speculative balances are idle and respond to the interest rate.
- Shift or movement?** A change in the interest rate is a movement **along** LP. A change in income, the price level, pay frequency or uncertainty **shifts** LP. A change in the money supply shifts **MS**.
- Read the new equilibrium** on the diagram: where the (new) LP meets the (new) MS.

Variants:

- "What shifts LP right?"** A rise in national income, a rise in the price level, more uncertainty. Left: paying wages more often (weekly instead of monthly), more cards and cash machines.
- The liquidity trap:** the horizontal part of LP at the lowest interest rate; an increase in MS there leaves the rate, and so output, unchanged; it goes with low interest rates, low inflation and low growth; it is part of **Keynesian** analysis.
- The purpose of interest** in Keynesian theory: the reward for parting with liquidity (not for saving).

- **Bond prices** are inversely related to the interest rate on them.
- **Essays** (12 marks in 2021–2022): explain the three motives and draw LP; add MS and show the interest rate it sets; then answer the question asked: why rates are sometimes very low (big rises in MS during recessions, LP flat at low rates), what the trap means for policy makers (monetary policy fails, so fiscal policy is needed), or how LP compares with loanable funds. Examiners wanted candidates to go **beyond** listing the three motives.
- **Loanable funds vs Keynes**: the interest rate brings saving and investment into line (classical); Keynes: saving depends on income and investment on expectations, so the interest rate does not guarantee $S = I$. Judge how far each fits the evidence (very low rates with weak investment after 2008 suggest Keynes's point).

2. Functions and characteristics of money; liquidity (16 questions)

All multiple choice (Papers 1 and 3).

1. **Function or characteristic?** The four functions are medium of exchange, unit of account (measure of value), store of value and standard of deferred payment. Divisibility, durability, portability and acceptability are characteristics, so never a "function".
2. **Match the scenario**: price comparisons → unit of account; paying later or in instalments, loans → standard of deferred payment; saving → store of value; buying and selling, ending barter's double coincidence of wants → medium of exchange.
3. **Inflation and deflation**: high inflation hits the **store of value** most; in deflation people hold money because it gains value (store of value), so spending falls.

Variants:

- **"Is it money?"** A local currency or an online payment method is money where it is generally accepted and performs the functions. A fee to use it makes it **less acceptable** as a medium of exchange.
- **Forged coins** threaten acceptability.
- **Liquidity** is the ease of turning an asset into cash without loss; most financial assets are more liquid than physical ones.
- **Not a function**: "a measure of satisfaction", "enables barter", "keeps its value when inflation is high".

3. Policies to reduce inflation and how monetary policy works (13 questions)

One multiple choice, the rest Paper 4 essays: monetary policy to cut inflation, policies against demand-pull or cost-push inflation (with a diagram), a 0% inflation target, the transmission mechanism, whether monetary policy alone can meet all the aims.

Plan (since 2023: Table A, knowledge and analysis, 14 marks; Table B, evaluation, 6 marks):

1. **Define** inflation and the policy terms (monetary policy, the money supply, an inflation target).
2. **Diagnose**: demand-pull or cost-push, and why it matters.

3. **Draw** a labelled AD/AS diagram (price level and real output on the axes, not P and Q) and refer to it. When the question says "with the help of a diagram", an answer without the right one is capped.
4. **Analyse at least two developed chains**, for example: the central bank raises its interest rate → loans and mortgages cost more and saving pays more → consumption and investment fall → AD shifts left → less pressure on prices. Use the **transmission mechanism**: policy rate → market rates, asset prices, credit, the exchange rate → spending → output and inflation.
5. **Evaluate with at least three developed points** from "How effective are they?" in "Understand it".
6. **Conclude** on the question's words: which policy, for which cause, in the short run and the long run.

Variants:

- **Multiple choice: why cut interest rates?** To raise AD (and, through more investment, AS); not to attract hot money, discourage borrowing or slow inflation.
- **A 0% inflation target:** write about the **target**, not about 0% inflation in general: why central banks set targets, how they hit them (bank rate, open market operations, QE), the case for and against 0%, and expectations.
- **Tax cuts with higher interest rates:** fiscal and monetary policy pulling against each other; and against cost-push (supply-shock) inflation demand-side policy has limited effect.
- **Monetary policy alone:** it can conflict with growth, employment and the current account, and is weak in a liquidity trap, so a mix with fiscal and supply-side policy works better.

4. Quantity theory of money (11 questions)

7 multiple choice, 4 essay parts (12 marks, 2021).

1. **Write** $MV = PT$ and the meaning of each letter. M is the **whole** money supply, not just notes and coins.
2. **Calculations:** use % change in $P \approx$ % change in $M +$ % change in $V -$ % change in T , or the levels directly.
3. **What the theory says:** with V and T constant, changes in M cause **proportional** changes in P (not the other way round, and nothing to do with liquidity preference). In the strict theory, M and P are the variables; V and T are constant.
4. **What lowers V :** being paid less often (monthly rather than weekly), lower interest rates, less use of cards and cash machines.

Variants:

- **"Which combination leaves prices unchanged?"** M and T rising by the same percentage with V unchanged (or anything where $M \times V$ grows as fast as T).
- **Essay** (12 marks): explain the four terms, the assumptions and the monetarist conclusion, then **why it may not work in practice** (the list in "Understand it") and its relevance for policy (control the money supply to control inflation). Examiners marked down answers that only defined the terms.

5. Money supply: measures and causes of change, including QE (9 questions)

Mostly multiple choice; one 12-mark essay part on QE.

1. **Why several measures?** Because money has different functions (narrow money for spending, broad money also as a store of value).
2. **Will the money supply rise or fall?** Use the table in "Understand it": more lending, central bank bond purchases, deficits financed by banks, QE and net currency inflows **raise** it; higher reserve ratios, a budget surplus, deficits financed by the non-bank public, net outflows and the public holding more idle cash outside the banks **reduce** it or leave it unchanged.
3. **QE:** the central bank **buys** (long-term) government bonds from the public and financial institutions → interest rates **fall** → investment **rises** → real GDP rises. On a money-market diagram, MS shifts right and the interest rate falls along LP.
4. **"Total currency flow"** is about money flowing between domestic and foreign residents.

Essay variant: **is QE effective in a recession?** Explain the steps; evaluate: banks may hoard the new reserves, firms and households may not borrow when confidence is low, it pushes up asset and house prices (helping the wealthy), it may cause inflation later, and it is hard to reverse.

6. Commercial banks, central banks and credit creation (8 questions)

5 multiple choice and 3 essays (13-mark parts, 2022).

1. **Credit multiplier** = $\frac{1}{\text{reserve ratio}}$. A rise in the ratio from 5% to 10% cuts the multiplier from 20 to 10, a fall of 50%.
2. **Central or commercial bank?** Only the central bank issues notes and is lender of last resort; only commercial banks aim to maximise profit; the government banks with the central bank.
3. **Commercial bank functions:** holding deposits, savings accounts and lending to households and firms. "Helping firms raise finance" (arranging share issues, an investment bank's job) was the answer when Cambridge asked what is **not** a commercial bank function.
4. **Financial crises:** caused by banks taking excessive risks (lending without enough security), not by tight controls or extra reserves.

Essay variants (13 marks, 2022):

- **The role and importance of commercial banks:** deposits, loans and overdrafts, payments, credit creation; then their **importance:** funding investment and growth, channelling monetary policy, and the risks when they fail. Examiners wanted analysis of at least two functions, not a list.
- **Can the central bank's aim (control the money supply) and commercial banks' aim (profit) both be achieved?** Tighter money means less lending and less profit, so they conflict; but if demand for loans is interest-inelastic, higher rates can raise bank profits, and a stable economy is good for banks in the long run, so they can fit together. Conclude.

Worked examples

Example 1

In an economy the money supply is \$500bn, the velocity of circulation is 4 and the volume of transactions is 1000bn. The money supply then rises to \$550bn, the velocity of circulation falls to 3.8 and the volume of transactions does not change.

According to the quantity theory of money, what happens to the price level?

A it falls by 0.5% **B** it rises by 4.5% **C** it rises by 5% **D** it rises by 10% **[1]**

Before: $P = \frac{500 \times 4}{1000} = 2.0$. After: $P = \frac{550 \times 3.8}{1000} = 2.09$, a rise of $\frac{0.09}{2.0} \times 100 = 4.5\%$: **B** (1).

D ignores the fall in velocity. The rough rule gives $10\% - 5\% - 0\% = 5\%$ (C), close but not exact: when the options are this close, work with the levels.

Example 2

Commercial banks keep a reserve ratio of 12.5%. A customer deposits \$8,000 of new cash.

What is the maximum increase in bank lending that can result?

A \$7,000 **B** \$56,000 **C** \$64,000 **D** \$100,000 **[1]**

The credit multiplier is $\frac{1}{0.125} = 8$, so total deposits can rise by $\$8,000 \times 8 = \$64,000$. That includes the original \$8,000 deposit, which is held as reserves, so new lending is $\$64,000 - \$8,000 = \$56,000$: **B** (1).

A is only the first bank's loan ($\$8,000 \times 0.875$); C is the rise in deposits, not lending.

Example 3

According to Keynesian liquidity preference theory, and with the money supply unchanged, which change would raise the rate of interest?

A The central bank buys government bonds from commercial banks. **B** Nominal national income rises. **C** Firms switch from paying wages monthly to paying them weekly. **D** The money supply increases while the economy is in a liquidity trap.

[1]

A rise in nominal income raises the transactions and precautionary demand for money, so LP shifts right along a fixed MS and the interest rate rises: **B** (1). A increases the money supply, so the rate falls; C means smaller average balances, so LP shifts left and the rate falls; D leaves the rate unchanged on the flat part of LP.

Example 4

After a long recession, a country's central bank has cut its interest rate to 0.25% and used quantitative easing to raise the money supply by 20% in two years. Over the same period the velocity of circulation fell by 15% and inflation stayed below the 2% target.

Assess whether an increase in the money supply will always lead to a higher price level. [20]

Model answer (paragraph plan):

1. **Definitions:** the money supply (narrow and broad), the price level and inflation, quantitative easing. (AO1)
2. **The case for:** $MV = PT$; with V stable and T fixed at full employment, a 20% rise in M would raise P by 20%. The monetarist chain: more money → people hold more than they want → they spend it → AD rises → with output at capacity, prices rise. (AO1, AO2)
3. **The Keynesian chain,** with a money-market diagram: more money supply → interest rate falls along LP → investment and consumption rise → AD rises (an AD/AS diagram) → where there is spare capacity, mostly output rises, and prices rise only near full employment. (AO2)
4. **Use the data:** $1.20 \times 0.85 = 1.02$, so total spending MV rose by only 2% even though M rose by 20%: the extra money was held, not spent. (AO2)
5. **Evaluation: why it may not raise prices.** V is not stable and falls when confidence is low; in a **liquidity trap** at 0.25%, extra money does not lower the interest rate further, so spending does not rise; with spare capacity, T rises instead of P ; banks may hoard the new reserves rather than lend. (AO3)
6. **Evaluation: when it does.** Near full employment, or when money grows far faster than output for years (hyperinflation is always linked to rapid money creation), prices do rise; QE may also push up **asset** prices (shares, houses) even when consumer prices do not; and once confidence returns, velocity can rise quickly. (AO3)
7. **Conclusion:** not always. It depends on whether the extra money is spent (V) and on spare capacity (T). In this country, with low velocity and a recession, it has not; in the long run, at full employment, sustained money growth is likely to raise prices. (AO3)

Table A top level (14): accurate definitions, accurate diagrams used in the argument, developed chains from both the monetarist and Keynesian views. Table B top level (6): several developed evaluative points and a justified conclusion tied to the data. **20/20**.

Common mistakes

- **Mixing up functions and characteristics.** In November 2021 (Paper 21) many candidates gave portability or acceptability when asked for a function; in November 2022 (Paper 22) functions were confused with characteristics again. In March 2022 (Paper 22) most did not know what a **standard of deferred payment** means, and some confused store of value with unit of account. Learn the four functions with an example each.
- **Getting the credit multiplier wrong.** In November 2021 (Paper 32 Q27) only 27% saw that a cash ratio rising from 5% to 10% halves the multiplier (from 20 to 10). Always work out $\frac{1}{\text{ratio}}$ before and after.

- **Thinking transactions demand depends on the interest rate.** In June 2022 (Q25 on Papers 31 and 33) only 29% (Paper 31) and 16% (Paper 33) chose the right answer (bond prices move opposite to interest rates); many thought the transactions motive was interest-elastic, or that demand for money is interest-inelastic at low rates, when in the liquidity trap it is perfectly elastic.
- **Not knowing when a liquidity trap happens.** In June 2024 (Paper 32 Q21) only 29% chose low inflation, low interest rates and low growth; the most popular answer had high inflation.
- **Defining without explaining.** In November 2021 (Papers 41 and 42) many QTM answers defined the four terms and stated $MV = PT$ but did not explain the assumptions or why the theory might fail. In November 2022 (Paper 42 Q5) many listed the three motives for holding money and stopped, without using the money supply to explain the interest rate.
- **A weak transmission chain.** In June 2022 (Papers 41 and 43 Q6) the link from money supply to interest rates to spending to GDP and employment was often unclear, and answers on commercial banks were descriptive lists. Write every link.
- **Answering a different question.** In March 2026 (Paper 42 Q4) many wrote about 0% inflation instead of a 0% **target**. In March 2025 (Paper 42 Q4) weaker answers drew micro diagrams instead of AD/AS, and Keynesian evaluation was often one sentence.
- **No conclusion.** In November 2022 (Paper 41 Q5) answers on the liquidity trap that did not conclude could not reach the top level.

How to get the marks

- **Multiple choice:** decide first whether the question is about the theory's **assumptions** (QTM: V and T constant) or about what **shifts** a curve (LP: income, prices, pay frequency; MS: the central bank, banks, the government, the balance of payments). For calculations, write the multiplier or MV before and after.
- **Definitions** earn the first marks: money, each function, the money supply, liquidity, velocity of circulation, the credit multiplier, liquidity preference, the liquidity trap, quantitative easing, an inflation target.
- **Diagrams:** money market with the interest rate (vertical) against the quantity of money, a downward-sloping LP and a vertical MS; loanable funds with saving and investment; AD/AS with "price level" and "real output". Label every curve and show the change.
- **Explain** means a developed chain: cause → mechanism → effect, each step stated. **Assess, evaluate, discuss, consider** and **to what extent** need both sides and a justified conclusion.
- **Essays:** since 2023, 20 marks: Table A (14) for knowledge, diagrams and analysis, Table B (6) for evaluation and a conclusion that answers the question's own words. In 2021–2022, 12- and 13-mark parts were marked in levels; the top level needed developed analysis, both sides where asked, and a conclusion.
- **Use the stem:** a stated target (2%, 0%), a named cause (cost-push, supply disruption) or a named policy mix (tax cuts with higher rates) should appear in every paragraph.

Quick check

1. An economy has a money supply of \$250bn, a velocity of circulation of 6 and 500bn transactions a year. Find the price level. If the money supply rises to \$300bn and the velocity of circulation falls to 5, with transactions unchanged, what happens to the price level? **[2]**
2. Banks keep a reserve ratio of 5%. Find the credit multiplier and the maximum rise in total deposits from a new cash deposit of \$1m. What are they if the reserve ratio rises to 8%? **[3]**
3. Name the motive for holding money in each case: (a) a café keeps cash to pay its suppliers each week; (b) a family keeps money aside in case the car breaks down; (c) an investor sells bonds because she expects interest rates to rise.
4. Explain two ways in which a government budget deficit can increase the money supply. **[2]**
5. A bond pays a fixed \$5 a year. Find its yield when its price is \$100 and when its price falls to \$80. What does this show? **[2]**

Answers

1. $P = \frac{250 \times 6}{500} = 3$ (1). After: $P = \frac{300 \times 5}{500} = 3$, so the price level is unchanged: the 20% rise in M is cancelled by the fall in V (1).
2. Multiplier = $\frac{1}{0.05} = 20$, so deposits can rise by up to \$20m (1). At 8%: multiplier = $\frac{1}{0.08} = 12.5$ (1), deposits up to \$12.5m, so the multiplier has fallen by 37.5% (1).
3. (a) Transactions. (b) Precautionary. (c) Speculative (she expects bond prices to fall, so she holds money).
4. If the government borrows from the central bank, new money is created to pay for its spending (1). If it borrows from commercial banks, the banks create new deposits when they lend to it, and the government spends them into the economy (1).
5. $\frac{5}{100} \times 100 = 5\%$; $\frac{5}{80} \times 100 = 6.25\%$ (1). When a bond's price falls its yield (interest rate) rises: bond prices and interest rates move in opposite directions (1).

Past questions to try

- 9708/32/O/N/21 Q27: the credit multiplier when the cash ratio changes.
- 9708/33/M/J/25 Q20: the quantity theory with three things changing.
- 9708/32/O/N/25 Q16: quantitative easing on a money-market diagram.
- 9708/41/O/N/22 Q5: the liquidity trap, then central bank and commercial bank aims.