CHARTA LEARNING · LESSON NOTES

The business cycle, unemployment and inflation

CFA Level I · Economics

You will learn: Name the stages of the business cycle and sort indicators by timing, explain why credit is procyclical and an early warning, calculate unemployment and participation rates, build a price index and inflation rate, and tell headline from core inflation.

Running example: Examples use made-up figures: quarterly output growth, a borrower with £100 million of debt, a country of 100,000 working-age people, and a shopping basket costing £200 in the base year.

1. The business cycle and its indicators

- The business cycle is the rise and fall of total output around its long run trend. It is not fixed in length. Four stages repeat: expansion (output, jobs and spending rise), peak (the top, a turning point), contraction (output and jobs fall), trough (the bottom, a turning point).
- Expansion and contraction are periods with a direction; peak and trough are single turning points. A peak is not a period of falling output.
- In an expansion unemployment falls and, as capacity fills, wages and prices rise, strongest near the peak. In a contraction unemployment rises and price pressure fades, so inflation is low near the trough. Output and employment move together.
- Recession rule of thumb: two quarters in a row of falling output. The official definition is a significant fall in activity across the economy, lasting more than a few months.
- Leading indicators turn before the economy (new orders, building permits, share prices) but can give false alarms. Coincident ones move with it (industrial production). Lagging ones turn after (length of unemployment): reliable but late.

EXAMPLE 1: REAL OUTPUT STARTS AT 1,000; GROWTH +0.8%, +0.3%, −0.2%, −0.5%, +0.4%

Peak: end of quarter 2	1,008.00 × 1.003	**1,011.02**
End of quarter 3	× 0.998	**1,009.00**
Trough: end of quarter 4	× 0.995	**1,003.96**
Fall from peak to trough	1,003.96 ÷ 1,011.02 − 1	**−0.70%**
End of quarter 5	× 1.004	**1,007.97**

Watch out: Calling a peak a falling period. Quarters 3 and 4 are two falls in a row, so the rule of thumb calls this a recession.

2. The credit cycle

- Credit is money lent now and repaid later. The credit cycle is the loosening and tightening of both the availability and the cost of credit. In good times lenders compete, relax rules and accept weaker borrowers; when losses appear they tighten and charge more.
- Credit is procyclical: it moves in the same direction as the business cycle and amplifies the swings. Easy credit speeds an expansion; tight credit deepens a slump. A countercyclical force would damp them.
- Credit leads output: it peaks and turns down first, and eases and turns up first. A sharp tightening of lending standards is an early warning, not a lagging confirmation.
- Refinancing risk: when credit is scarce and dear, a firm with debt falling due may find no lender or a very high price. The credit spread is the extra yield over the government rate for the risk of non-payment: narrow in good times, wide in bad.

EXAMPLE 2: COMPANY OWES £100 MILLION, GOVERNMENT RATE 5.0%

Good times: spread 1.0%	5.0% + 1.0%, 6.0% of £100m	**6.0%, £6.0m a year**
Bad times: spread 4.0%	5.0% + 4.0%, 9.0% of £100m	**9.0%, £9.0m a year**
Extra cost of the turn	£9.0m − £6.0m	**£3.0m**

Watch out: Treating tight credit as a lagging signal or as a cushion. It leads, and it amplifies.

3. Unemployment and participation

- Working-age population: everyone old enough to work. Labour force = employed + unemployed. Unemployed = no job but actively looking. Everyone else (students, retirees, carers, those who have given up) is outside the labour force. Having no job is not enough: you must also be looking.
- The unemployment rate uses the labour force as denominator, not the whole population. The participation rate is the only place the working-age population appears.
- If unemployment falls while participation falls too, ask whether people have simply stopped looking (discouraged workers).
- Frictional: the short gap between jobs, always present. Structural: skills do not match the jobs. Cyclical: rises in contractions, falls in expansions. Underemployed people (part-time wanting full-time) count as employed, so the headline understates slack. When a recovery begins, discouraged workers return and the rate may rise.

Unemployment rate = unemployed ÷ labour force. Participation rate = labour force ÷ working-age population

EXAMPLE 3: WORKING-AGE 100,000; EMPLOYED 62,000; UNEMPLOYED 4,000; OUTSIDE 34,000

Labour force	62,000 + 4,000	**66,000**
Unemployment rate	4,000 ÷ 66,000	**6.06%**
Participation rate	66,000 ÷ 100,000	**66.0%**
After 1,000 stop looking: unemployment	3,000 ÷ 65,000	**4.62%**
Participation; employed	65,000 ÷ 100,000; no one hired	**65.0%; still 62,000**

Watch out: Dividing the unemployed by the whole population (4,000 ÷ 100,000 = 4% is wrong); cheering a lower unemployment rate when participation is falling.

4. Measuring inflation

- Inflation is a sustained rise in the general price level. Statisticians price the same basket of a typical household's shopping each period, weighted by household spending. The most common measure is the consumer price index (CPI).
- An index is a level, not a rate. Points convert to a rate only when the starting level is 100; otherwise divide the change by the earlier level. Inflation is measured against the earlier price level.
- Headline inflation covers the whole basket; core inflation strips out food and energy, whose prices swing with weather, wars and oil supply. A big gap tells you the rise is mostly food and energy, not broad.
- Flaws: substitution bias (shoppers switch from dear beef to chicken, but a fixed basket still prices the beef, overstating the rise); quality changes (a better phone costs more, which is not all inflation); new goods missed until the basket is updated.
- Disinflation: inflation still positive but falling. Deflation: the price level itself falling. They are not the same.

Index = basket cost now ÷ base-year cost × 100. Inflation = index now ÷ index a year earlier − 1

EXAMPLE 4: BASE-YEAR BASKET COSTS £200

One year later	210 ÷ 200 × 100	**105.00 (inflation 105 ÷ 100 − 1 = 5.0%)**
Two years later	216.30 ÷ 200 × 100	**108.15**
Year two inflation	108.15 ÷ 105 − 1	**3.0% (3.15 ÷ 105)**
Headline, food and energy 25% rose 8%, rest 75% rose 2%	25% × 8% + 75% × 2% = 2.0 + 1.5	**3.5% (core 2.0%)**

Watch out: Reading 3.15 index points as 3.15%; the rate is 3.15 ÷ 105 = 3.0%. Inflation fell from 5% to 3% yet prices are still rising.

5. What causes inflation

- Demand-pull inflation: spending grows faster than the economy can produce, so too much money chases too few goods. Causes: rising incomes, easy credit, tax cuts, strong demand from abroad. It tends to appear late in an expansion, with output above trend and unemployment low.
- Cure for demand-pull: cool demand with higher interest rates or less government spending. Prices rise while output and jobs rise.
- Cost-push inflation: firms face higher costs (wages, oil, raw materials) and pass them on in prices. Output falls and unemployment tends to rise, giving rising prices with a weak economy: stagflation. It is not caused by too much demand.
- Raising interest rates is a poor cure for cost-push inflation: it cools demand but the problem is on the supply side, so it deepens the slump while prices stay high. Both look the same in the index; the cause decides the response.

Key takeaways

- The cycle runs expansion, peak, contraction, trough; peaks and troughs are points, not periods.
- Leading indicators turn first, coincident ones with the economy, lagging ones after.
- Credit is procyclical and leads output: tightening is an early warning and amplifies the swings.
- Unemployment rate = unemployed ÷ labour force; participation = labour force ÷ working-age population; people who stop looking leave both counts.
- Index = cost now ÷ base cost × 100; inflation = index now ÷ index a year earlier − 1; headline includes food and energy, core does not.
- Demand-pull comes with a hot economy; cost-push brings stagflation, and higher rates are a poor cure.

Quick check

1. Labour force 80,000; unemployed 4,000. What is the unemployment rate?
   Answer: 4,000 ÷ 80,000 = 5.0%.
2. An index rises from 120 to 123.6. What is the inflation rate?
   Answer: 123.6 ÷ 120 − 1 = 3.0%.
3. Lenders tighten standards sharply while output still grows. Signal?
   Answer: An early warning of a slowdown: credit leads the cycle and is procyclical.