

## Supervision 3 Unemployment and Money

### Short questions (250 words max)

1. The economy of Laboria is suffering from persistently high unemployment. The average job lasts 70 months whereas the average spell of unemployment is 10 months. Compute the steady state rate of unemployment in Laboria, and suggest three measures that could reduce its persistently high unemployment.
2. In the Classical model, the quantity theory of money and the Fisher equation imply that an increase in the growth rate of money supply leads to an increase in inflation and a decrease in the real interest rate. True or false? Explain.
3. Explain the long-run effect on the nominal interest rate, real money demand and the price level in case of
  - (a) an increase in real output.
  - (b) a decrease in the real interest rate.
4. Suppose a financial crisis
  - (i) reduces the value of banks' assets (e.g. due to bad loans);
  - (ii) leads to fears of bank runs.

Explain how (i) affects banks' leverage ratio and (ii) the money multiplier.

### Problems

5. The European Central Bank (ECB) has the objective to pursue price stability. The ECB's quantitative definition of price stability, defined as annual HICP inflation between 0-2%, has been criticized for not being precise enough. (For example, the Bank of England has a target for annual CPI inflation of 2.0%.) The ECB also announced a reference value for monetary growth of 4.5% for M3. In addition, its medium term projections of real GDP growth and the decline in the income velocity of M3 were 2-2.5% and 0.5-1%, respectively.
  - (a) What are the benefits of pursuing price stability? (250 words max)
  - (b) Compute the ECB's objective for inflation implied by the reference value for money growth. [Hint: Use the quantity equation].
  - (c) Long term nominal interest rates in the euro zone (measured by the yield on 10-year government bonds) are currently around -0.3%. Suppose people expect inflation to be 1.5%. Compute the ex ante real interest rate for the euro zone.
  - (d) If actual inflation exceeds expected inflation, then the ex ante real interest rate is below the ex post real interest rate. True or false? Explain. [Tripos 2008]

6. Consider the classical model.
- (a) The classical dichotomy implies that nominal variables are not affected by real variables. True or false? Explain.
  - (b) Suppose now that consumption depends positively on real money balances and that real money balances depend negatively on the nominal interest rate.
    - i. Explain the effect of an increase in the rate of money growth on consumption, investment and the real interest rate.
    - ii. Explain whether the classical dichotomy and the Fisher effect still hold.

### Main reading

- Mankiw and Taylor (2014), *Macroeconomics - European Edition*, chapter 4, 5 and 7.

### Supplementary references

- Blanchard and Johnson (2012), *Macroeconomics*, chapter 4 and 6.
- Jones (2014), *Macroeconomics*, chapter 7, 8 and 10.4.
- Mundell (1963), "Inflation and Real Interest", *Journal of Political Economy* 71(3) [seminal paper]
- Shiller (1997), "Why Do People Dislike Inflation?", in: Romer and Romer, *Reducing Inflation: Motivation and Strategy*.
- Symposium on Natural Rate of Unemployment, *Journal of Economic Perspectives*, Winter 1997.
- Symposium on European Unemployment, *Journal of Economic Perspectives*, Summer 1997.