

The questions written in red are voluntary

Justify all your answers

Question 1. Money multiplier model (20%). The European Central Bank (ECB) has adopted several measures to counteract the adverse economic impact on the eurozone of the coronavirus pandemic. One of those measures reads as follows.

“We are being temporarily less strict about the amount of funds, or ‘capital’, that banks are required to hold as a buffer for difficult times.”

<https://www.ecb.europa.eu/home/search/coronavirus/html/index.en.html>

- (i) What concept in the money multiplier model would correspond to ‘the amount of funds ... that banks are required to hold’?
- (ii) Explain how the money multiplier process represented in the model would be affected by the ECB measure.
- (iii) Explain how the ECB measure would affect the money multiplier.

Question 2. Liquidity market model (25%). The European Central Bank (ECB) has adopted several measures to counteract the adverse economic impact on the eurozone of the coronavirus pandemic. One of those measures states the following.

“The €750 billion Pandemic Emergency Purchase Programme (PEPP) aims to lower borrowing costs and increase lending in the euro area. This in turn should help citizens, firms and governments get access to funds they may need to weather the crisis.

We buy several different kinds of assets in this programme. For example, when we buy bonds directly from banks, we make more funds available that they can lend to households or businesses. We can also buy companies’ bonds, giving them an additional source of credit. Both kinds of purchases help boost spending and investment, with the aim of supporting economic growth.”

<https://www.ecb.europa.eu/home/search/coronavirus/html/index.en.html>

- (i) To what concept explained in the course does the PEPP correspond? Justify your answer.
- (ii) Explain what kind of monetary policy the PEPP represents.
- (iii) Show, in a graphical representation of the liquidity market model, the effect (on both the interest rate and the volume of liquidity) of a measure like the PEPP. Identify which functions change and explain why. Explain as well if the changes found in your analysis are consistent with the aim of the PEPP, namely, ‘to lower borrowing costs and increase lending’.

Another of those measures holds that

“In times of great uncertainty, banks may find it harder to secure funds for short-term needs. We aim to help smooth over any temporary funding issues for solvent banks by offering immediate borrowing options at favourable rates. This support helps banks continue granting loans to citizens and firms in need.”

- (iv) To what concept explained in the course does ‘offering immediate borrowing options at favourable rates’ correspond? Justify your answer.

Question 3. Currency market model (25%). The European Central Bank (ECB) has adopted several measures to counteract the adverse economic impact on the eurozone of the coronavirus pandemic. One of those measures reads as follows.

“Central banks around the world hold reserves of currencies that are not their own. This is because their domestic banks also do business in these currencies, and thus sometimes require foreign-currency loans in the course of daily business.

In times of great uncertainty, customers’ demand for foreign currency assets can increase. If banks do not have enough foreign currency reserves on hand to meet increased demand, markets can become unstable. So central banks have established so-called currency swap lines. These swap lines let central banks of one country exchange their national currency reserves for those of the central bank of another country – thus ensuring that central banks can meet increased demand.

We have recently reactivated swap lines and enhanced existing swap lines with central banks across the globe...”

<https://www.ecb.europa.eu/home/search/coronavirus/html/index.en.html>

- (i) Explain why ‘In times of great uncertainty, customers’ demand for foreign currency assets can increase’.
 - (ii) Show, in a graphical representation of the currency market model in which the euro is the domestic currency and the dollar the foreign currency, the effect on the exchange rate of Europeans willing to purchase more American financial assets.
 - (iii) Assuming that banks are the main suppliers of foreign currency in normal circumstances, represent in the currency market model the fact that European banks have a limited amount of dollars to sell.
 - (iv) Represent in the currency market model the fact that the European Central Bank makes use of a swap line with the Federal Reserve to compensate a possible insufficient supply of dollars by European banks.
 - (v) Extend the analysis in part (ii) assuming that ‘the great uncertainty’ also affects Americans.
 - (vi) Show, in a graphical representation of the currency market model in which the euro is the domestic currency and the dollar the foreign currency, the effect of a swap line in which the European Central Bank buys dollars from the Federal Reserve.
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Question 4. AS-AD model (30%). The European Central Bank (ECB) has adopted several measures to counteract the adverse economic impact on the eurozone of the coronavirus pandemic. Some of those measures consist of the following.

“We have kept our key interest rates at historically low levels so borrowing costs remain low.

Our rates impact how much it costs to take out a loan. Low rates make it easier for people and companies to borrow funds, and should support spending and investment.

We have increased the amount of money that banks can borrow from us and made it easier for them to borrow specifically to make loans to those hardest-hit by the spread of the virus, including small and medium-sized firms.”

<https://www.ecb.europa.eu/home/search/coronavirus/html/index.en.html>

- (i) Show, in a graphical representation of the AS-AD model, the effect on the inflation rate and GDP of a two-month general lockdown (justify the shifts in AS or AD).
 - (ii) Show, in a graphical representation of the AS-AD model, the effect on the inflation rate and GDP of lowering borrowing costs for consumers and making it easier for banks to make loans to firms (justify the shifts in AS or AD).
 - (iii) Show, in a graphical representation of the AS-AD model, the effect on the inflation rate and GDP of an increase in the transfers that the government pays to firms and workers (justify the shifts in AS or AD).
 - (iv) Let the general lockdown be expected to last five more months. Show, in a graphical representation of the AS-AD model, the effect on the inflation rate and GDP of that expectation: (a) first taking into account only the reaction of the private sector; (b) adding next the likely response of the public sector; and (c) adding finally the behaviour of the foreign sector.
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Question 5. Suppose that the government of a country decrees that every person entering the country (be that person a foreigner or a national) must endure a two-week lockdown, as a measure to prove that the person is COVID-free.

Explain, with the help of graphical representations, the effect of this measure on the interest rate, the exchange rate, the inflation rate and GDP (and, through Okun's law, the unemployment rate).
