
Question 1: Economics:**(40 points)**

a) The common instruments of monetary policy are as follows:

- **Open market operations** involve the buying and selling of securities by the central bank. When the central bank buys securities from any seller, it pays, in effect, by issuing a cheque on itself. When the seller deposits the cheque in its bank account, the bank presents the cheque to the central bank for payment. The central bank, in turn, honours the cheque by increasing the reserve account of the seller's bank at the central bank. The reserves of the seller's bank rise with no offsetting decline elsewhere; consequently, the total volume of the monetary base increases. Exactly the opposite occurs when the central bank sells securities. The payment reduces the reserve account of the buyer's bank at the central bank with no offsetting increase elsewhere, and the monetary base declines. This characteristic – the direct change of the monetary base with the purchase or sale of securities by the central bank – makes open market operations the most powerful, flexible, and precise tool of monetary policy.

If the market for government securities is too thin to accommodate open market operations, the central bank mainly uses other instruments such as swaps. A swap defines several different operations. In the present context, it refers to the purchase of a currency on the spot market and the simultaneous sale of the same currency on the forward market.

- **Discount window**

The central bank's lending can be implemented in two ways. Discount window, by which credit can be implemented as a discount of eligible papers (notes, drafts and bills of exchange) or as an advance secured by collaterals. Satisfactory collaterals generally include national and local government securities, mortgage notes and business, consumer or other customer notes. Although these are two distinct forms of credit, both practices are customarily referred to as discounting, and the interest rate charged on such borrowing is called the **discount rate**. When obtaining credit in the form of a discount, the borrowing depository institution transfers eligible paper carrying its legal endorsement to the central bank. In return, the borrower is credited by an amount equal to the discounted value of the eligible paper at the current discount rate. When the discounted paper matures, it is returned to the borrower, and the borrower's reserve account is debited by the full amount of the paper. An advance is simply a loan from the central bank to the borrowing institution on its note secured by adequate collateral.

- **Reserve requirements**

Changes in reserve requirements ratios (the percentage of deposits of certain types that banks must hold in reserve at the central bank in the form of non-interest-bearing balances) can be a useful supplementary tool of monetary policy. Decreasing the ratios leaves depository institutions initially with excess reserves, which can induce an expansion of bank credit and deposit levels and a decline in interest rates; it also lowers the costs of bank funding by reducing the amount of non-interest-bearing assets that must be held in reserve.

In a number of markets, for example the US, the repo can be the main instrument for undertaking open market operations

b)

b1)

The inter-bank market rates will be nudged to extremely low levels and short-term interest rates (short-term fixed and floating lending interest) will be lower than they would have been had Quantitative Monetary Easing not taken place. Long-term interest rates are influenced by the average of future short-term interest rates, and will therefore decline when market participants forecast short-term rates to be 'low' for a prolonged period of time.

Stronger intervention in foreign exchange markets will result in a weaker exchange rate (depreciation) for the home currency.

b2)

Quantitative monetary easing will reduce interest-rate levels, which will reduce the cost of raising new funds for both private-sector companies and the government, while simultaneously reducing the burdens for existing debt as well. This reduction in the cost of raising new funds can be expected to stimulate private-sector capital investment. In addition, high levels of liquidity increase the availability of funds to private-sector companies, which may also be a factor for boosting capital investment. On the other hand, the reduced burdens for existing debt, increases the rates of return for private-sector companies.

For the government as well, lower interest payments on securities have the effect of reducing the amount of new government securities issued. These factors combine to increase the creditworthiness of private-sector companies (IS-LM model: low interest rate -> increase in investment -> increase the demand for goods and services -> increase in output) and the government and gives the economy the potential to break out of stagnation.

b3)

The negative side-effects of Quantitative Monetary Easing discussed in b2) are the result of burdens placed on the household sector, which is the ultimate supplier of funds. In other words, Quantitative Monetary Easing reduces the total interest paid against household financial assets. On the other hand, the "Ratchet Effect" is at work on household spending, so it does not react sensitively to the decline in income. The result is to decrease the savings rate.

Lower private-sector debt burdens are highly likely to permit inefficient enterprises to continue in existence, which lowers the profitability of financial assets as economic resources.

The declines in the savings rate and in the profitability of financial assets could potentially undermine economic activity in the long run.

c)

Quantitative Monetary Easing reduces interest-rate levels, which should have the effect of causing funds to flow out of the economy to foreign countries and the effect of causing the home currency to depreciate. But when interest rates are close to zero and the economy is in deflation, one must assume that real interest rates are stuck at high levels. High real interest rates prevent much outflow of funds to foreign countries, so Country A will be able to bring down its home currency only by intervening in the foreign exchange markets. Intervention by the government in the foreign exchange market will cause the home currency to depreciate, expand the trade surplus and increase Country A's national income (Marshall-Lerner: currency depreciation leads to a rise in trade surplus).